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ABSTRACT

This newsletter, focusing on literature and research on cognitive behavior modification (CBM), reviews articles and research on CBM with children. Works on retarded children, deaf children and children with learning disabilities are presented, with critical analyses. A parallel section on CBM with adults follows. Problem areas of phobias, anxiety, and self-control--as they appear in research and literature--are presented. Research on clinical problems and techniques regarding the aged, brain damaged, and schizophrenics is reviewed. Each section includes a bibliographic essay of the year's output. The newsletter concludes with current published references of articles in CBM that were reviewed in earlier CBM newsletters. Addresses of researchers and references to actual studies are included. (Author/BEF)

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COGNITIVE BEHAVIOR MODIFICATION NEWSLETTER

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BY WAY OF INTRODUCTION

It has been some seventeen months since I last attempted to put together the *Cognitive-behavior modification* (CBM) newsletter. A good deal has happened in the field during this period. Several CBM books have been published (and many more are on the way), an audio-cassette tape series on CBM has been initiated, two journals that are closely tied to CBM have begun (*Cognitive Therapy and Research* and the *Journal of Mental Imagery*) and two conferences were conducted -- one on Cognitive-behavior therapy research and a conference on imagery. A CBM special interest group has been formed within the Association for the Advancement of Behavior Therapy (AABT). Thomas Dowd puts out a Newsletter that may be of interest (Note all addresses, including Dowd's are listed in the back of this Newsletter). But perhaps most importantly the empirical and theoretical base upon which CBM procedures depend has grown substantively. This is most evident in just the size of the present CBM Newsletter. In fact, one can even find job ads for cognitive-behavioral types (whoever they are). An interesting index of growth is evident in the last AABT program where over 25 papers were presented that were closely tied to CBM, compared to four papers in the 1975 AABT program when this newsletter began. These 25 papers, as well as some 20 presented at the 1978 American Psychological Association meeting are not reviewed in this newsletter, but await future consideration.

The present CBM newsletter is designed to provide an integrative critical review of the CBM activity within the last 17 months. As I have mentioned in the three previous issues, the major objective of the CBM newsletter is to nurture and influence the kind of research and clinical practice that is conducted. The goal is to insure that the current wave of interest in CBM will not represent a passing fad, but instead that a dialogue will be established between CBM research and clinical practice and also between CBM and the research on cognitive processes in experimental, social and developmental psychology. This dialogue will benefit both areas.

The CBM newsletters also provide an occasion for stocktaking. This newsletter represents a reading of everything that has crossed my desk in the last 17 months. Once again, I hope that I do not offend anyone by including him/her or by omitting him/her from the newsletter. Let me invite your reactions and contributions.

In conclusion, a note of deep appreciation must be conveyed to those who have helped support this venture. When one's delusions of grandeur (a kind of I.F. Stone of the behavior modification literature) are so warmly nurtured by one's friends and colleagues, expressions of gratitude are called for. First and most importantly, you, the reader, have demonstrated generous support in the form of your contributions and notes of encouragement. Thank you. Financial support was also provided by the University of Waterloo, in particular by Robin Banks, Chairman of the psychology department and by the Institute for the Advanced Study in Rational Psychotherapy, in particular Albert Ellis and Janet Wolfe, and by Biomonitoring Associates of New York in the persons of Bob Matloff, Peter Wengert and Seymour Weingarten. To each of these people I wish to express my deep appreciation.

A YEARS TALLY

Each year I begin the CBM newsletter with a yearly tally -- a kind of state of the union address. The evaluation comes in two parts -- first, concerning the work with children, and secondly, the work with adults.

The CBM research with *children* can be summarized under a few headings. First we have come to better appreciate the limitations of a CBM self-instructional approach in altering children's self-control problems, viz., hyperactivity, aggression. A major concern has been the issue of treatment generalization over time, settings and tasks. Although there have been some promising outcome studies, the accompanying circumspection has led us to reconsider the role of cognitive factors in the behavior change process with children.

An important link that was forged since the last newsletter is the bridge between CBM and the developmental work on metacognition (i.e., the study of executive processes or planning behavior). This rather exciting linkage should foster a good deal of future research and alterations in clinical practice as noted below. At the same time that a number of critical reviews of CBM with children were offered, a good deal of activity was apparent. This is evident in the number of comparative outcome studies, dismantling studies, and most excitingly is the extension of CBM to new populations.

A similar development is evident in the *CBM work with adults*. Parallel trends are apparent in just the sheer amount of research activity. The host of clinical problems tackled by CBM is indeed impressive, ranging from phobias through self-control problems to the extension to such new populations as the aged and brain damaged populations. A year-end tally is offered below separately for each clinical population. One common and important theme is evident across the various disorders; this involves the emergence of a conceptual ('theoretical') model to explain change. An important recognition by those who have worked in the field is that the focus on self-statements or automatic thoughts or coping strategems etc., is insufficient and something more is needed; something that captures the meaning systems underlying the client's internal dialogue. Several different constructs, including cognitive structures, schemas, current concerns, hidden agendas, connotative and denotative meaning systems were offered to explain an evidential model of change. A common view of the change process with adults seems to be emerging even though therapists may use different modes of intervention. This model of change involves having the client emit behaviors in vivo that lead to consequences that are incompatible with prior expectancies. Then one can have the client examine what gives rise to such expectancies, appraisals, attributions, etc. Although this model may be couched in different terms, whether it be Bandura's self-efficacy and reciprocal determinism notions or in some other language, the point is that we are moving toward a concern with mechanisms and away from mere engineering questions (which treatments works better with which clients, etc.).

A concern with theory has implications for assessment, as noted below, and causes us to question the theoretical models of conditioning (also questioned below), as well as how these concerns dovetail with work in cognitive psychology.

Another important development in the last year was a greater concern with methodological considerations in outcome studies and the development of newer, more sensitive assessment procedures. A serious limitation of both the adult and child research is the dearth of studies using clinical populations. Analogue studies still predominate, but some beginnings have been forged with clinical populations.

The CBM field has grown so rapidly that it is becoming almost an impossible task to summarize the entire field in one newsletter such as this. As mentioned before, several recent books have appeared or are about to appear (Beck et al., 1979; Foreyt & Rathjen, 1978; Ellis & Grieger, 1978; Kendall & Hollon, 1979; Meichenbaum, 1977). Also, in the back pages of each issue of the *Cognitive Therapy and Research* Journal recent CBM related articles and books are listed. The reference section in this newsletter also provides a comprehensive listing, more complete than could be reviewed in the newsletter itself. Before we begin to examine the research on CBM it should be noted that another sign that CBM has come of age is that it was vehemently and vituperatively attacked (e.g. Greenspoon and Lamel, 1978; Ledwidge, 1978; Observer, 1977, 1978; Rachlin, 1977; Wolpe, 1978) and that a number of rebuttals were in turn offered (Ellis, 1978; Locke, in press; Mahoney and Kazdin, in press; Meichenbaum, in press; Wilson, in press).

Finally one word about the format of this newsletter. In the back of this newsletter are listed the addresses of the researchers and separately the reference to the actual study. Thus a listing Smith (Univ Waterloo) would require the reader to check Smith in both the reference and address sections.

CBM WITH CHILDREN

> 'Now for the R! Up we go! Attach! Descend! Play out line! Whoa! Attach! Good! Up you go! Repeat! Attach! Descend! Play out line. Whoa, girl! Steady now! Attach! Climb! Attach! Over to the right! Pay out line! Attach! Attach! Now right and down and swing that loop and around and around! Now in to the left! Attach! Climb! Repeat! O.K.! Easy, keep those lines together! Now, then, out and down for the leg of the R! Pay out line! Whoa! Attach! Ascend! Repeat! Good girl!'
>
> And so, talking to herself, the spider worked at her difficult task. When it was completed, she felt hungry. She ate a small bug that she had been saving. Then she slept.
>
> E.B. White *Charlotte's Web* (1952, p94).

A major continuing concern for CBM researchers with children has been the examination of rule-governed behavior. Does teaching children to think before they act, does training children to produce self-instructions as in the example offered by E.B. White's spider transfer to other settings? The answer to these and related questions will be addressed in this section. The child section is divided into a listing of the major review papers that have been offered in the area; a summary of comparative outcome studies, initially with self-instructional training and then problem-solving; a review of dismantling studies; a consideration of the issue of generalization and in particular the important developments in *metacognitive* research and their implications for CBM as evident in a concern with underlying mechanisms; a summary of studies of subject characteristics, in particular, studies with hyperactive and impulsive children and the extension of CBM to new populations such as retarded, deaf and learning disability children. Finally we will conclude with a pot pourri section on self-control.

Major review articles on CBM with children. A number of major review papers on CBM with children were written since the last newsletter. The reader should see Craighead, Craighead-Wilcoxon and Meyers, 1978; Karoly, 1977; Kendall and Finch, in press; Mash and Dalby, in press; Meichenbaum, 1978; Meichenbaum and Asarnow, in press. A consistent theme across these several reviews is that although CBM approaches with children who have self-control problems is encouraging, evidence for the generalization of such treatment effects across settings and over time is not encouraging. Note that a similar set of conclusions could be offered for other behavior management approaches such as operant conditioning (see Emery & Marholin, 1977; Coates & Thoresen, in press; and Keeley, Shemberg & Carbonell, 1976). In short, the absence of treatment generalization should humble the promoters of any treatment approach, including CBM. Let me not, however, point a too dismal picture. Indeed, there have been a number of promising training studies (e.g., Bornstein & Quevillon, 1976; Camp et al., 1977; Douglas et al. 1976 and other more recent studies reviewed below). Let us now examine the comparative outcome treatment studies and then we can examine why they were not even more successful.

COMPARATIVE OUTCOME CBM STUDIES WITH CHILDREN

Self-instructional training. The general research strategy that has been employed in the CBM studies with children is usually a comparison of three groups; one receives self-instructional training; one is a placebo or practice group that receives exposure to all of the same training tasks and experimenter contact, but no self-instructional training is included; and finally, an assessment control group is included that receives pre-post-followup assessments. A relatively consistent pattern of results is now emerging from such studies, namely, that the CBM self-instructional group does better on a number (but not all) of the psychometric indices employed, but these results do not generalize to classroom settings as assessed usually by the Connors teacher rating scale. Although there are a few studies that have obtained such generalization the thrust of the conclusion holds. It now seems that the focus of our research attention should be on facilitating such generalization. Perhaps we should now consider comparing various self-instructional groups that are designed to enhance generalization (see Meichenbaum and Asarnow, in press for elements of what needs to be concluded for generalization to occur). Interestingly, we can now include standard self-instructional training groups that have proved most successful in past studies as a comparison baseline against which to assess the relative efficacy of the generalization groups. Perhaps the best sign of progress is when we can take our most effective past treatment group (self-instructional training) and turn it into the control group in our next study. Now to the comparative outcome studies.

Since the last newsletter there has been a good deal of work on the CBM treatment of impulse disorders in children (e.g. Furgerson, 1977, Heath, 1978, Moore & Cole, 1977; Nelson, 1976; Weinreich, 1975). Much of this work is reviewed in the recent chapter by Kendall and Finch (in press). For example, a cognitive-behavioral treatment that combined self-instructional training via modeling with response cost was successfully employed by *Philip Kendall* (Univ Minnesota) and *Al Finch* (Virginia Treatment Center for Children, Richmond) in treating a clinic population of emotionally disturbed children. This study, which was described in CBM newsletter 3, has now been published (Kendall and Finch, 1978). Kendall and his colleagues at Minnesota have written a detailed CBM manual for developing self-control in children.

Daphne Bugenthal (Univ Calif., Santa Barbara) and her colleagues (Bugenthal et al., 1978) have conducted a follow-up assessment of the hyperactive children studied in the Bugenthal et al. (1977) study. In the initial investigation two tutorial programs were conducted with elementary-aged boys in a school setting. One manipulation consisted of contingent social reinforcement, while the other used self-instructional training. No overall differences in short term gains were observed between the two treatments, but interactions were observed between the child's medication status, attributions of control, and intervention strategy. The CBM treatment was most effective for children who were not medicated or who had a high sense of personal control. Bugenthal et al. (1978) conducted a 6-month follow-up. CBM produced significantly stronger long-term benefits in terms of the child's increased perception of personal control over academic outcomes while social reinforcement affected teacher ratings on the Conners scale. Bugenthal et al. suggest that the combination of the two treatments would seem the best treatment strategy, with the operant procedure administered first then followed by a shift to CBM self-control procedures.

Thomas Neilans and *Allen Israel* (SUNY at Albany) taught behavior problem children (ages 7-13) a self-regulation package consisting of self-monitoring, self-goal-setting, self-evaluation and self-reinforcement skills ala Kanfer's self-control model and accompanying self-statements ala Meichenbaum and Goodman's (1971) procedure. This self-regulation program was compared to a conventional token reinforcement program. The token reinforcement program was immediately successful but these gains were not maintained after withdrawal of the token system. In comparison, the self-regulation system produced greater reduction in disruptive behavior and greater increases in academic performance over the maintenance period. The Neilans and Israel study indicate the value of training maintenance skills directly. Moreover the introduction of self-statement component produced improvement in academic and

social behavior. The self-statement was introduced with reading tasks and evidence for transfer to other domains was evident. Neilans and Israel suggest that once the self-regulation package has been taught, it can be effectively introduced into another setting by reintroducing the self-statement component of that package to the new setting.

Samuel Moore and *Sherwood Cole* (Rutgers Univ) have used undergraduate volunteers to teach 8-to 12-year-old hyperkinetic children self-mediation skills (Moore & Cole, 1978). The trainers received six group training sessions and supervision was then maintained while the trainers conducted individual self-instructional training for six 30 minute training sessions. The training tasks included a variety of sensorimotor exercises, with a sequentially numbered dot task proving most valuable for teaching self-statementa. Relative to matched placebo control (presented with same materials as self-instructional subject but who received no self-instructional training), and relative to an assessment control group, the self-instructionally trained subjects improved significantly on such indices as Kagan's Matching Familiar Figures (MFF) test, Embedded Figures test, WISC picture arrangement and coding subtests. Improvement was not evident on the wisc block design nor on the Conners teacher rating scale. Given that the focus of self-instructional training was on carefully and selectively attending to alternative choices and planning choice behavior (e.g., on dot problems, mazes), it makes some sense that improvement would not generalize to tasks that require different cognitive skills such as the part-whole analyses needed on the Block design task. The inclusion of socially oriented content in the self-instructional training program seems required in order to obtain generalization to the classroom. The Moore and Cole study is consistent with other findings (see Meichenbaum and Asarnow, in press), and further implicates the need to teach what will be described below as metacognitive skills.

Rachel Gittelman-Klein, *Howard Abikoff*, and *Donald Klein* (Long Island Jewish) are comparing CBM vs. drug medication with an outpatient group of hyperactive children. The need for such comparative outcome studies with clinical populations is quite apparent. Since I mentioned hyperactivity two slight detours are appropriate.

Given that CBM is often compared with stimulant drugs for the treatment of hyperactivity, several recent review papers on medication with hyperactives are worth examining (Barkley, 1977; Campbell, in press). The general conclusion is that although stimulant medication may help a substantial proportion of children, some children fail to respond; moreover, the follow-up studies find the long term psycho-social adjustment of these children to be essentially unaffected by stimulant drug treatment.

Carol Whalen (Univ Calif. Irvine) and *Barbara Henker* (UCLA) have indicated that the use of drug treatment operates by more than by pharmacological means. Medication also alters the socio-psychological environment of the child. Actually, it would be quite worthwhile to replicate the Whalen and Henker (1977) attribution interview study with adult neurotics who are taking medication. Also see Whalen and Henker (in press).

Secondly, a few brief comments about assessment instruments for hyperactivity are in order. Recently Abikoff et al. (1977) have offered a 14-category observational scale to record classroom behavior. The scale bears careful consideration. This observational procedure should be used in conjunction with the Conners' teacher rating scale (Conners, 1969) since the use of the Conners' observation scale alone yields a fairly high percentage of false positives. Recently Zukow, Zukow and Bentler (1978) have developed parent and teacher rating scales for hyperkinesis. A developmental examination of the relationship between the connors, abikoff et al and the Zukow et al. scales should prove most worthwhile. Still another self-control rating scale for children has been developed by Kendall and Wilcox (1978). Their scale may also prove a useful adjunct to the Conners rating scale, assessing behaviors that are more closely targeted by CBM treatment. The self-control scale contains 33 items to be rated by the teacher (parent or therapist) on a 7-point scale. In such a study of children with self-control problems it is necessary to distinguish between children who are hyperactive and those who are hyperaggressive (see Loney et al., 1978).

Barkley et al. (1978) reported on a self-control package (self-instruction, self-monitoring and self-reinforcement) in the classroom for hyperactive children. Although the short term intervention (6 weeks) affected the children's classroom behavior, academic achievement, not surprisingly, was unaffected. Barkley et al. indicate the self-instructional methods fit quite nicely into the teacher's style of instruction and could be used easily across a variety of academic and social situations. The group format of self-instructional training was seen as a useful tool, since the boys could act as models for one another. Many of the boys' parents commented that they had noticed their boys talking out loud at home during problem situations since the program began.

The group teaching in the Barkley et al. study raises the possibility of peer teaching as a means of implementing CBM. A recent review article by McGee, Kauffman and Nussen (1977) highlights the methodological problems and therapeutic potential of such a peer-oriented intervention.

Consistent with the notion that one can use children to act as peer teachers for others, Toner et al., (1978) have reported that having children serve as rule-following models for other children resulted in greater self-control for the model children in subsequent resistance-to-deviation tasks. The Toner study further indicates the potential of peer tutoring.

Dan Watson and *Deborah Hall* (1971) successfully used a CBM approach that highlighted the role of relaxation as a coping response with hyperactive children. Although the results are a bit complex, depending upon the specific dependent variables, the general thrust was to further indicate the potential of such a CBM approach. Most interestingly, the self-control training resulted in improvement in reading performance, a finding others have also reported. A most valuable addition to the CBM armamentarium is a recent teacher's manual for teaching self-control to children written by Wilson, Watson and Hall (1978).

Sinclair (1976) compared self-instructional training in cognitive skills vs. self-instructional training in social behavioral activities vs. an attention and no treatment control. She failed to find evidence for the efficacy of CBM treatment and considers a variety of subject and treatment factors to account for this, including the possibility that her subjects were not indeed impulsive relative to other studies. The focus of the self-instructional training was very task specific (what Kendall calls concrete self-statements), underscoring the need for more abstract, metacognitive self-statements.

James Snyder (Wichita State Univ.) and *Michael White* (Ball State Univ.) have successfully applied self-instructional training to institutionalized adolescents (Snyder and White, 1977). Relative to contingency awareness and assessment control groups the self-instructionally trained adolescents reduced impulsive behaviors, increased school attendance and self-care responsibilities, all of which were evident at a six-week follow-up. The impulsive behaviors included drug taking, physical aggression toward residents and staff, stealing, and destruction of property. The self-instructional training focused on problematic self-control situations the adolescents encountered and highlighted the role of private speech as a contributor to conflicts. Modeling of means-ends problem-solving facilitated change.

PROBLEM SOLVING TRAINING

One CBM approach that has been employed is self-instructional training in which the child is taught task specific and then general cognitive and behavioral strategems. Closely akin to the self-instructional training and often

indistinguishable from it is the teaching of general problem solving skills. Indeed one can conceptualize CBM training as falling along continua where the content and format of training change from concrete to abstract and from directive, including explicit modeling and rehearsal, to generally didactic teaching. The CBM continua with children are illustrated by the studies of Meichenbaum and Goodman (1971) and Shure and Spivack (1978). This section of the newsletter is designed to critically, although briefly, evaluate the CBM problem-solving approach with children.

See Goldfried (in press) Heppner (1978), and the work of *Myrna Shure George Spivack* and *Jerome Platt* (Hahnemann Hospital, Phila.) for more complete reviews. In three books these authors (Spivack and Shure, 1974; Spivack, Platt and Shure, 1976, and Shure and Spivack, 1978) describe their CBM problem-solving approach. Most valuable is the set of training materials and program scripts for both young children and parents. While their work holds much promise the research issues and potential of a problem-solving approach bears careful scrutiny.

Lawrence McClure (Univ. S. Carolina), *Jack Chinsky* and *Stephen Larcen* (Univ. Conn.) compared a no treatment, video modeling, video-modeling plus discussion exercises, and modeling plus role play exercises in enhancing social problem-solving performance in an elementary school setting. The problem-solving program was conducted as part of a social studies curriculum with 185 third and fourth grade children, (McClure et al. 1978). While the role-play and discussion treatments tended to be superior, unequivocal evidence of their superiority was not forthcoming. A major concern with this type of research raised by the authors is whether improvements in subject's ability to solve hypothetical problems do in fact transfer to real life problem solving. There is a clear need to conduct naturalistic observational studies of problem-solving behavior for children who have received problem-solving training. This call is echoed in the research reports of almost all who have studied problem-solving with children.

Carl Thoresen (Stanford Univ.) and his colleagues (Thoresen et al., 1977) have developed a CBM training regimen that focuses on self-control training with elementary-school-age children. Thoresen et al. (1977) describe in some detail the mechanics of the intervention that they call 'Learning House' and how it can be extended into the home environment by involving parents. Only promissory data has been forthcoming with this project.

Michael Russell (Baylor College of Medicine) and *Susan Roberts* have developed a behaviorally based decision making training regimen for children (Russell and Roberts, in press). They used written and audiotaped materials to teach decision making to small groups of children within the standard elementary school setting. The seven-step training program includes: 1) identifying the problem, 2) generating alternate solutions, 3) thinking of positive and negative consequences for each solution, 4) collecting information, 5) comparing each alternative with personal values, 6) making a decision and 7) re-evaluating the decision at a later time. In order to teach these skills a variety of materials is employed, including workbooks, audiotapes, etc. Russell and Roberts have shown that such training improves children's problem-solving skills on paper and pencil tasks, but it is not evident that such skills transfer to classroom performance in interpersonal situations.

That this is not an idle concern is evident from a recent study in our lab by *Linda Butler* (Univ. Waterloo), who found that school children who differed on Spivack and Shure's means-ends problem solving skills did not differ in their interpersonal behavior in the classroom. On the other hand, children who differed in peer status, as assessed by the Bower Class play sociometric measure, differed significantly in interpersonal behavior.

In a related study with preschoolers Linda Krasnor (1976) also failed to find a relationship between children's ability to give alternatives to test problems and successful problem-solving in the nursing school.

Kay Colby Sharp (Ithaca College) also failed to find a significant relationship between Shure and Spivack's problem-solving measure (PIPS) and behavioral adjustment for preschoolers. The studies by Butler, Krasnor and Sharp question the proposed relationship between 'adaptive functioning' and the cognitive ability to think through and solve interpersonal problems. A recent personal communication from Myrna Shure, however suggests that a couple of recent studies provide some behavioral validity for the problem-solving measures. We need to determine when knowledge translates into behavior.

Joop Meijers (1978) has published his doctoral dissertation on problem-solving therapy with socially anxious children. The book is rich with background material on problem-solving training and with detailed accounts of the training format and assessment tools. From an initial pool of 500 sixth grade children Meijers identified 33 children in the treatment phase. The groups included problem-solving, two placebo groups, one control group. The training was 14 sessions (two 1 1/4-hour sessions a week for 7 weeks). The results of the study only partially supported the efficacy of the problem-solving treatment, since on several measures the placebo groups demonstrated as much or more treatment effects. Meijers' critical evaluation of the problem-solving literature and in particular his inclusion of placebo groups is a much needed addition to the problem-solving training literature.

Poitras-Martin (Montreal) and *Gerald Stone* (Univ. W. Ontario) have published a study on problem solving with children that was described in the third newsletter, page 8. (See update of reference in the back of this newsletter; training materials are available from Poitras-Martin).

Although the use of problem-solving training has been questioned by these studies, the potential of a variant of the approach is indicated in a recent study by Block.

Joel Block (Plainview New York) successfully employed a rational-emotive program with grade 11 and 12 high-risk, misconduct-prone black and Hispanic high school students. The subjects were 40 adolescents (21 female, 19 male) who volunteered for 'intense discussion groups to improve school success.' They received academic credit for participating. Their past records reflected low grades (average 65 or below) and extensive absences (40 or more), latenesses (25 or more), class cuts (25 or more) and disciplinary reports. The subjects were divided into one of three groups (1) rational-emotive education, (2) human relations based on psychodynamic principles and (3) no treatment control. Two experienced therapists conducted each of the treatment groups. The rational-emotive education followed the manual of Knaus (1974) and included role playing. A description of the lessons are available from Block. The reported results in terms of grade point, disruptive behaviors and class cuts are impressive. The national-emotive group was most effective both immediately and at a follow-up period (next semester). The rational emotive approach was based on an active, directive, highly structured style which Block indicates may be an important variable contributing to success relative to the reflective leadership style of the human relations group. Whatever the source of explanation for the changes in the subject's behavior, Block's study needs to be replicated and extended, especially with regard to more adequate assessment of behavioral changes in the classroom.

Closely akin to problem-solving training is a reattribution intervention (Andrews and Debus, 1978; Dweck and Repucci, 1973). *Carol Dweck* (Univ. of Illinois) and her colleagues have provided evidence (1978) that environmental factors appear to produce and maintain important individual differences in response to evaluative feedback from adult agents. Dweck's studies nicely illustrate a way to examine the relationship between the mode of interpersonal contact (pattern of feedback from teachers) and the child's attributional style and its subsequent impact on performance. For example, a fine study by Carol Diener and Carol Dweck (1978) found that in

response to failure 'helpless' children's think aloud protocols differed from their non-helpless counterparts.

Finally, a possible fruitful source of interchange may emerge between those CBM who are teaching problem-solving skills (ala Spivack and Shure) and attributions ala Dweck and the developmental work on perspective taking, for example, in the work of *Lawrence Kurdek* (Wright State Univ.) (see Kurdek, 1978; Rubin, 1978).

DISMANTLING STUDIES

The CBM treatment studies with children and adolescents that have been described thus far represent complex, multifaceted treatments and it is not clear what are the essential and active ingredients. In previous newsletters I have noted our penchant to follow a research strategy that does to CBM treatment what researchers have done to desensitization treatment, namely, follow a dismantling strategy.

Wilbur Nelson (Newington, Conn.) and *John Birkimer* recently conducted a component analysis of self-instructional training with second-and third- grade impulsive children. The results indicated that the combination of self-instruction plus self-reinforcement were more effective than self-instruction alone and more effective than attention control and assessment control groups in reducing errors and increasing latency on the MFF test. An extended report is available from Nelson.

John Parrish and *Marilyn Erickson* (Vn. Commonwealth Univ.) assessed the relative efficacy of scanning strategy instructions, self-verbalization instructions and the combination of the two in altering the impulsive style of 'normal' third graders. With such children the treatments in isolation were efficient to modify impulsive behaviors. The cognitive training procedures generalized to the children's academic work, but not to non-academic behavior in the classroom. Parrish and Erickson (1978) discuss a variety of factors that may mitigate the effects on classroom behavior, including low pretest scores.

Kendall and *Wilcox* (1978b) assessed the relative efficacy of concrete versus conceptual CBM treatment with 8, 12-year-old problem children. The training involved six 40-minute sessions twice a week for three weeks, during which the children were exposed to psychoeducational and interpersonal training. The CBM training included modeling, self-instructional training and response cost procedures. The two treatment groups differed in the nature of the self-instructional training: a *concrete approach focused only on the task at hand while a* conceptual *approach dealt with problem* solving in general. The following illustrates the two types of self-instrucitonal style employed.

> Concrete self-instructional training. *Problem definition*: I'm to find the picture that doesn't match. *Problem approach*: This one's a clock, this one's a clock, this is a cup and saucer, and this one is a clock. *Focusing of attention*: Look at the pictures. *Self-reinforcement*: The cup and saucer are different; (check answer sheet), I got it right. Good job! *Coping Statement*: Oh, it's not the clock that's different, its the teacup. I can pick out the correct one next time. *Labelling a response-cost*: (done, obviously by therapist) No, it's not the clock, it's the teacup. You lose one chip for picking the clock.
>
> *Conceptual self-instructional training. Problem definition*: My first step is to make sure I know what I'm supposed to do. *Problem approach*: Well, I should look at all the possibilities. *Focusing of attention*: I should think about only what I'm doing right now. *Self-Reinforcement*: (checking the answer sheet) Hey, good job. I'm doing very well. *Coping statement*: Well, if I make a mistake I can remember to think more carefully next time, and then I'll do better. *Labelling a response cost*: No, that's not the right answer. You lost one token for not using your time and getting the correct answer. (Kendall and Wilcox, 1978, p. 13)

The efficacy of the two CBM treatment groups relative to an attention placebo control group was evident on the performance measure of MFF latency but not errors nor Porteus move performance, but on teacher ratings (Conners scale and Kendall-Wilcox self-control scale) both immediately and at a one month period. The treatment effects were stronger for the conceptual labeling group than for the concrete labeling group. Only the CBM group that received conceptual labeling evidenced significant improvement on teacher ratings at followup relative to both the concrete labeling and attention placebo control groups. Another observation bears mention concerning the Kendall & Wilcox study, namely, they very nicely include data on non-referred cases for the various dependent measures. This is a most welcome addition.

The use of conceptual labels is consistent with the suggestions deriving from the metacognitive literature (see Meichenbaum & Asarnow 1978). I wonder if some combination of concrete and conceptual labeling would prove most effective. Our clinical experience suggests that first giving the child an opportunity to do a task then having the child use concrete self-instructions and then finally abstract self-instructions is most useful. For example, consider the study by Zelniker and Oppenheimer (1973), who trained impulsive children to improve performance on the MFF by giving training on a DFF (Different Familiar Figures test). Recall that the MFF requires the child to find one object that is the same as the standard picture, while the DFF requires the child to find from an array of six alternatives one that is *different* from the standard. The other five alternatives are the same as the standard. Zelniker and Oppenheimer reported that such DFF training transferred to MFF performance. Their study indicates that one can affect the conceptual style of impulsive children by manipulating task characteristics as well as by directly exposing the child to CBM self-instructional training.

Now lets tie together the Zelniker and Oppenheimer and Kendall and Wilcox studies. Self-instructional training may be most efficacious when administered after the child has acquired elemental skills. Once the subject does the DFF then the child may be most responsive to self-instructional training, initially of a concrete variety and then of a conceptual type. The literature of self-instructional training with impulsive-hyperactive children is suggesting that the technique may be less effective in the acquisition of elemental skills (see Meichenbaum, 1978) but CBM training seems most useful in inhibiting impulsive responding by subjects who already have skills in their repertoire.

In short, we have become more sophisticated since the initial Meichenbaum and Goodman (1971) study in appreciating what self-instructional training can and cannot do. Research is sorely needed to assess these notions about the way in which language can be used to enhance self-control.

METACOGNITION AND TREATMENT GENERALIZATION

Generalization should be programmed rather than expected or lamented (Baer et al., 1968, p. 97). A persistent theme in the work in behavior therapy has been a preoccupation with the issue of treatment generalization. As noted above, the intent (and hope) of CBM was that by including and emphasizing cognitie processes in training, the likelihood of achieving generalization over time, tasks, and settings would be increased. As the CBM studies with children indicate, such generalization was not consistently forthcoming, although some researchers did indeed obtain generalization.

A number of recent papers (Baer and Stokes, 1977; Meichenbaum & Asarnow, 1979) have directly addressed the generalization issue. An important bridge that may help us better understand the mechanisms required for generalization was forged with the developmental research on metacognition. One could easily generate a newsletter just on the burgeoning literature in this promising area. The references by John Flavell, Ann Brown, John Campione, John Borkowski, John

Belmont, and Earl Butterfield illustrate the area of metacognition.

Metacognitive development refers to the acquisition of knowledge and cognition about cognitive development. To use Ann Brown's phrase it is 'knowing about knowing' or the subject's awareness of his own cognitive machinery and the way this machinery works. Perhaps a quote from Flavell (1976) best captures the processes.

> Metacognition refers to one's knowledge concerning one's own cognitive processes and products or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition (metamemory, metalearning, metaattention, metalanguage, or whatever) if I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact; if it occurs to me that I have better scrutinize each and every alternative in any multiple-choice type task situation before deciding which is the best one; if I sense that I had better make a note of D because I may forget it; ...Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective. (1976, p.232)

Another example that captures the metacognitive process is if I ask you to introspect for a moment about what are the cognitive and behavioral acts you engage in to retrieve a bit of information such as a name which you have forgotten (i.e., the tip of the tongue phenomenon). Consider what you do to retrieve the missing name, the way in which you 'massage the associative engrams,' etc. This knowledge of your metamemory processes and how you monitor and control these processes is what is being captured in the metacognitive literature. Whereas this work began in the area of memory, it has quickly been extended to a variety of areas where children are interviewed and their behavior is being examined to tap metacognitive processes as applied to attention (see Miller and Bigi, 1978), reading comprehension (Meyers and Paris, 1978, Ryan 1978), self-control (Mischel, Mischel and Hood, 1978), metacommunication (Markman, in press), and other areas. For example, the Meyers and Paris (1978) study indicates that children could benefit from instruction regarding the means, goals and parameters of proficient reading. The Mischel et al. (1978) study on metacognitive analysis of the delay of gratification task could readily be extended to other self-control tasks. These metacognitive studies open an entire new domain for assessment. See the linguistic analysis of mother-child interactions by *Wertsch* (Northwestern) as a way to study social discourse as a mediator of metacognitive skills. Also see Ross and Karoly (1977), who found that mothers of low-self-control children were intrusively controlling and more critical than mothers of high-self-control children.

In terms of CBM, metacognition refers to the self-communication one engages in, or the internal dialogue one emits before, during, and after performing a task. Incorporating and focusing on such metacognitive skills in CBM training will enhance treatment efficacy and the likelihood of treatment generalization (see Meichenbaum and Asarnow, 1979). A number of these implications have been summarized by Borkowski and Cavanaugh (1979), who describe what should go into generalization instruction:

> 'First, we need to identify several strategies each of which are operative in different learning situations. Second, we need to train children on several strategies, making sure that they know when and how to apply them. Third, we need to train the instructional package so that common elements between training and generalization contexts are evident, and distractors minimal. Fourth, we need to develop child-generated search routines, probably through the use of self-instructional procedures, that encourage the child to analyze a task, scan his or her available strategic repertoire, and match the demands of the task with an appropriate strategy and retrieval plan. Fifth, we need to instruct children in such a way that we utilize whatever skills they possess, in order to bring each child to an awareness of the advantage of executive monitoring and decision-making in solving problems. Finally, we may need to reinforce, in a very explicit way, successful executive functioning in order for it to come under the control of natural environmental contingencies, such as a child's good feelings about solving a difficult problem' (p.54).

We should compare the various CBM training studies that have been conducted against the Borkowski and Cavanaugh checklist. It does not seem reasonable to expect that teaching children to self-instruct on say the Porteus maze or some other lab task will transfer to improved classroom performance as assessed by the Conners scale. Instead the teaching of general self-interrogation stragegies or superordinate skills must be central to CBM treatment and the investigator must thoroughly understand both the tasks he uses during training and the ones he uses to test transfer. See Brown and Campione, (1978) for an articulate statement of the issues involved in maintenance and generalization.

In short, the field should focus directly on generalization training. One way to proceed is to have children perform on a number of tasks and in each case the child must indicate what the problem is – namely train to the point of proficiency where the child learns to recognize across both impersonal and interpersonal situations that a problem exists. Once this phase is developed the next phase could begin with a goal of generating response alternatives, and so on. Meichenbaum and Asarnow (in press) discuss how such a metacognitive perspective can be included in a classroom curriculum. A consideration of the mechanisms underlying the CBM training should help to further elucidate what is required to obtain generalization.

MECHANISMS UNDERLYING CBM TRAINING

Our concern should not only be with relative treatment efficacy but also with the nature of the mechanisms that mediate change when indeed the CBM treatment works. A research treatment study must do more than alter target behaviors. It should help elucidate underlying change mechanisms, reveal aspects about the treated populations, and also reflect on the theoretical developmental issues, such as the nature of self-control. An articulate statement of these goals has been offered by Brown and Campione (1978) and Belmont and Butterfield (1977). These two articles are highly recommended.

This section will summarize some of the recent studies that help elucidate the underlying mechanisms or provide useful paradigms for future research. To illustrate such an approach consider the recent study on the effects of overt rehearsal on performance by Geiselman and Bellezza (1977). *Geiselman* and *Bellezza* examined the relationship between eye movements and overt rehearsal in word recall. Although the results can only be generalized to those situations in which words are sequentially presented, Geiselman and Bellezza found that overt rehearsal slowed down eye movements, biased the subject (college students) toward a serial learning strategy, improved immediate recall, but did not reduce delayed recall. In short, recall performance following overt rehearsal was different from recall performance following silent study. Since one focus of the self-instructional research has been to examine how private speech is employed by specific clinical populations (Fuson, 1978; Meichenbaum & Goodman, 1978), it would be interesting to extend the Geiselman and Bellezza paradigm to clinical populations. In this way we could determine if overt rehearsal plays a similar functional role in such clinical populations. Do those populations for whom a verbal control deficit has been

postulated differ in the functional role of overt rehearsal? Do such clinical populations differ in their disposition to initially rehearse and in the functional control such rehearsal plays in effecting other ongoing behavioral streams (e.g., eye movements and subsequent performance)? We can now begin to combine the experimental paradigms, as illustrated by Geiselman and Bellezza, and clinical concerns.

Another study in the same genre is by Ornstein, Naus and Stone (1977), who examined the relation between age-related changes in the activity of rehearsal and corresponding changes in recall. Using an overt rehearsal, free-recall task with second and sixth grade children Ornstein et al. demonstrated the facilitative effects of active rehearsal, and nicely specified the mechanisms underlying improvement. The study provides a model of how the effects of CBM training can be assessed by means of examining recall order effects and rehearsal strategies.

That such assessment procedures can be employed in treatment studies was illustrated by Kendall and Finch (1977) who reported that impulsive children who received CBM treatment increased their on-task verbal behavior in comparison to controls. CBM-treated impulsive children, in comparison to reflective children, asked more task-related questions and they reduced off-task and increased on-task verbal behavior. These findings are encourageing in suggesting that the treatment goal of 'thinking before acting' may indeed be achieved by means of CBM treatment.

Whereas a good deal of attention has been directed at the content and patterning of children's spontaneous private speech as a reflection of planfulness, a recent study by *MacWhinney* and *Osser* (1977) indicates the value of studying children's silences and pauses as a reflection planfulness. MacWhinney and Osser offer 15 measures of children's hesitancy. It would be interesting to determine if children undergoing CBM intervention differ in their planfulness as reflected in their speech characteristics. It may not only be in what children say, but also in what they fail to say, that illustrates the potential impact of self-instructional training.

The point in this discussion is that we need more sensitive dependent measures to understand exactly what our treatments are doing, if anything. Closely related to the issue of mechanisms are theoretical issues. A major consideration that is often overlooked in the CBM literature involves the theoretical concern about the relationship between thought and language (see Toulmin, 1978). At times we seem to become so preoccupied with outcome studies, pitting one approach (usually drug or operant) versus CBM that we fail to see the potential theoretical value of this developmental CBM research. A recent paper by Moore and Harris (1978) summarizes the issues within a Piagetian framework. Piaget has pointed to the work of Sinclair as illustrating the limited role of language in altering cognition. Moore and Harris critically evaluate this important work. A recent study by Schleser et al. (1978) found that level of cognitive development, as assessed by Piaget's conservation task, interacts with responsiveness to self-instructional training.

Such studies as Schleser et al. rekindle questions about the relationships between thought, language and behavior. Can one use language to instrumentally alter the other processes? The link between language and behavior has received attention by operant researchers under the heading of correspondence training or the linkage between verbal and motor operants. For example, see recent papers by Bloor (1977), Israel (1978) and Rogers-Warren et al. (1977,1978). CBM can act as a tool to further examine other aspects of the relationships.

IMPULSIVITY-REFLECTION

Since a major target problem for CBM researchers has been impulsivity as measured by Kagan's Matching Familiar Figures (MFF) Test, some brief comments on studies using the MFF may be helpful. An important development in this area has been the development of norms for the MFF by *Neil Salkind* (Univ. Kansas). Moreover, Salkind and Wright (1977) proposed a division of MFF performance into an impulsivity score, the standard score of MFF errors minus standard score of MFF latency (Ze-Zl), and efficiency score, the sum of the standard scores for these two variables (Ze+Zl). Comparative studies need to be conducted which compare the four quadrant procedure using Salkind norms with the standard score approach ala Salkind and Wright. (See Messer and Brodzinsky (1978) for one such comparison.)

A good number of articles on cognitive impulsivity have appeared since the last newsletter and a review of all of this work is impossible here. A few articles, however, bear special mention. The first, by Zelniker et al. (1977) reports on childrens' consistency in evidencing fast or slow decision times on MFF-like problems, but their accuracy on such tasks depends on the compatibility between the child's strategy and specific task requirements. A related concern was addressed by Smith and Singer (1977), who conducted a multitrait-multimethod analysis of measures of reflection-impulsivity.

Kennedy and *Butter* (1978) provided evidence for the consistency of the cognitive style of impulsivity-reflectivity cross-modally. They assessed fourth grade children on a visual and auditory sequential discrimination task. Kennedy and Butter raise the possibility of a relationship between auditory impulsivity and children's reading problems. The Kennedy and Butter tasks may provide useful training material for impulsive children.

Auer, Mitchell, and *Hartmann* (1976) highlight some of the methodological problems in reflection-impulsivity research that derive from low reliability of error rates and from the moderate negative correlation between latency and error rates.

Egeland and *Weinberg* (1976) examined the test-retest reliability (1 week) of the MFF at three grade levels and noted the differential reliability. Reliability was particularly poor at the kindergarten level.

Cairns and *Cammock* (1978) have developed a longer, more reliable version of the MFF test. They have developed a 20-item MFF test suitable for use with children in age range 7-11 years. Copies of MFF may be obtained, at cost, from Ed Cairns (see address listing).

Hartley (1976) provided evidence that the perceptual features of the stimulus situation can markedly influence impulsives' performance. These results suggest that sensitization to perceptual features may be an effective means of improving impulsives' performance. Recent studies by Zelniker and Oppenheimer (1976) confirm Hartley's findings about the importance of perceptual stimuli in affecting impulsives' performance. Zelniker and Oppenheimer found that a differentiation training procedure that highlighted stimulus differences was more effective than a matching training format, underscoring the difficulty impulsive children have in attending to stimulus details. Zelniker and Oppenheimer suggest that training should involve varying relevant details between training problems. Zelniker and Oppenheimer's studies (1973, 1976) underscore the *importance of manipulating task characteristics* as well as the accompanying self-statements and modeled strategems.

In terms of training studies with the MFF, Cullinan et al. (1977) assessed the relative efficacy of cognitive modeling, cognitive modeling plus self-verbalization, and control on MFF performance in learning disabled children. The treatment effects versus the control group were evident on posttest but not on a delayed 3-week test. The treatment reduced errors without affecting latency performance. In order to obtain durable changes, more extensive training may be needed. For example, Egeland (1974) found that impulsive subjects who received several training sessions evidenced improvement at a 2-month followup assessment.

Ron Haskins and *Rachel Mizrahi* (Univ. North Carolina, Chapel Hill) have provided evidence that differences in strategies of information processing between reflectives and impulsives, and not speed of responding are central features underlying impulsivity. The accumulative evidence suggests

that impulsive children perform more poorly than reflectives primarily because they use developmentally less competent strategies. Consistent with the Haskins and Mizrahi findings is a recent study by Brodzinsky, Feuer, and Owens (1977), who provided further evidence that a production deficiency stemming from a general style of responding, rather than a cognitive ability deficit *per se*, underlies the cognitively impulsive child's performance, at least as assessed on a linguistic ambiguity task. Brodzinsky et al. found that prompts by an examiner to think of alternative meanings of sentences facilitated the performance of impulsive and slow-inaccurate children more than it did that of reflective children. These results raise the question of whether impulsive children can be taught to give themselves appropriate prompts.

Finally in an interesting study *Stan Messer* (Rutgers Univ.) and *David Brodzinsky* related conceptual tempo as measured by MFF to both fantasy aggression and sociometric and teacher ratings with fifth grade boys and girls. Their results suggest that impulsive children differ from reflectives and other conceptual tempo groups (fast accurate and slow-inaccurate) not so much in their propensity to be aggressive in either fantasy or action, but in the way they respond to their own aggressive cognitions. The impulsive children were less likely to complete projective stories involving aggression with consequences or interrupting or displacing their aggression as did the other groups. Moreover those impulsive children who tell more aggressive stories are more likely to act on their impulses, whereas this did not hold for reflectives. The Messer and Brodzinsky study indicates that the conceptual tempo measure extends beyond the problem solving sphere.

The role of mediating processes in the control of aggression was also highlighted by *Bonnie Camp* (Univ. Colorado Medical School). Camp and her colleagues (1977) administered a variety of verbal and nonverbal tasks to 71 pairs of aggressive and normal boys in kindergarten through second grade. The results did not indicate a generalized deficit among the young aggressive boys, but instead supported the interpretation that some deficit in the mediational use of verbal ability may be present in aggressive boys. These results bear careful examination, for if replicable, they clearly implicate the potential for CBM intervention.

NEW POPULATIONS AND NEW TARGET BEHAVIORS

One of the more exciting developments in CBM with children since the last newsletter is the extension to new populations. Some of the populations that are receiving most attention are retarded children, deaf children and learning disability children.

RETARDED CHILDREN

Al Litrownik (San Diego State Univ.) and his colleagues (Janet Collins, Greg Lecklitner, Cathy Cleary, Brad Steinfeld, Louis Framini) presented an interesting APA symposium on the development of self-control by trainable mentally retarded people. Also see Kurtz and Neisworth (1976) and Mahoney and Mahoney (1976). Common to these programs is a component analysis, whereby the elements of self-monitoring, standard setting, self-evaluation and self-reward are assessed and trained in retarded individuals (see Litrownik, 1978). The training in Litrownick et al.'s program is criterion-based so that the child must demonstrate competence at each stage before advancing to the next. One wonders how the metacognitive approach of Brown, Borkowski could complement Litrownick et al.'s self-control training program. For example, see the recent study by Guralnick (1976) in which the focus was on teaching problem solving behaviors to retarded children.

Nila Bender (Univ. Calif., Riverside) used verbal mediation training with trainable mentally retarded children (Bender, 1977). The practice of having the retarded children verbalize aloud while doing an action resulted in their spontaneously labeling performance following training, but this did not enhance performance of actions relative to a silent condition. Verbal mediation training enhanced verbal performance on both a mediating and a labeling context even though both groups (aloud and silent conditions) were exposed to the same instructions. Somehow the think aloud process affects the labeling process, but more is needed to bring behavior under verbal control.

Further speculations that argue for a concern with the acquisition of information gathering strategies (ala metacognitive development) with retarded children have offered by Snyder and McLean (1977), who discuss a framework for understanding severe language deficiencies.

Ron Norton (Univ. Winnipeg) and *Carolyne Timlick* have examined the use of modeling and verbal cues on concept acquisition of moderate retardates (Timlick & Norton, 1978). The subjects were non-institutionalized moderately retarded children (IQ 36-54). The dependent measures were performance on the MFF and the Leiter Scale. The training task was a matching block game. The groups compared included no model, model only, model plus low meaning verbalization (e.g. 'this block goes here'), model plus conceptual verbalization (i.e., a verbal rule explaining placement of block) and a conceptual model who self-verbalized a variety of self-guiding and self-reinforcing statements. The results indicated that the self-verbalization condition produced the most changes. The favorable results did not generalize from the Leiter scale to the MFF. The absence of generalization in this study underscores the points made earlier about a metacognitive deficit underlying inadequate performance with retardates, thus mitigating the generalization process. The modeling of imagined instruction may have proven more effective as suggested by the results of Mansdorf (1977). Norton is presently investigating verbal self-direction procedures with a phonics approach to improve reading. (His Prentice-Hall book on *Parenting* also describes how CBM can be applied by parents.)

Finally, the work by *Ann Brown* and *John Campione* (Univ. of Illinois) and Turnure et al. (1976) on teaching retarded children self-interrogation strategies provides a most useful model for CBM treatment. Can the cognitive and metacognitive skills that have been taught to retarded children for essentially laboratory tasks be applied to interpersonal and life-skills tasks? This is a major direction for future CBM work.

DEAF CHILDREN

Robert Harris (St. Paul-Ramsey Hospital) has written a thoughtful review of the impulsivity literature with deaf children and indicates the potential of CBM training with this population. Harris notes in particular the problems that arise when deaf children have hearing versus deaf parents and asks whether sign language and/or fingerspelling can be used as an alternative or supplementary means of self-control training. For example Harris and *Dave Glenwick* (Kent State) assessed the cognitive impulsivity of deaf and hearing children. Deaf children had significantly longer latencies than hearing children, but made significantly more errors. Several theses are now underway to examine if deaf children can be taught to alter their impulsivity and reactions to failure by means of learning to sign to themselves instrumentally.

Joe Regan (O.I.S.E.) is conducting a dissertation on cognitive mediational training with deaf children. He is comparing self-instructional training by means of language, sign, and imagery with deaf children who differ in language competence. He supplements the self-instructional training by employing written index cards. This research holds much promise. *Richard Ingram* (James Madison Univ.) has also outlined a CBM training project with the deaf.

LEARNING DISABILITY CHILDREN

A major CBM training program with learning disability children is underway at the Univ. of Virginia by *Dan Hallahan*,

Jim Kaufman and *Dick Bell*. They have a large project in which they are extending the CBM training regimen directly into the classroom. That learning disability children need such training is indicated from the review by Hallahan and Kaufman (in press) who conclude that a rehearsal deficit and/or metacognitive skills deficit characterize such children. Recent studies by Bauer (1977a,b) also implicate a rehearsal deficiency in learning disability children.

Barbara Keogh (UCLA) and *Judith Margolis* (Calif. State Univ. L.A.) have conducted a component analysis of attentional problems of educationally handicapped boys and found that although EH boys do poorer than matched normal controls on a variety of attentional tasks, the inability to sustain attention seems to be a central deficit. Keogh and Margolis (1977) suggest that inadequacies in task definition, in determining salience, and in organizing and evaluating stimulus content may underlie these attentional deficits. It would be most interesting if the Miller and Bigi (1978) metacognitive interview approach were combined with the Keogh and Margolis assessment approach. Do the various attentional components of coming to attention, decision making and maintaining attention over time require differential treatment intervention as Keogh and Margolis suggest?

In recent years there has been increasing interest in using CBM to teach academic material, arithmetic reading and memory recall skills. At this point there are mixed results concerning the feasibility of such CBM training. For example, contradictory results have been obtained with self-instructional training to teach arithmetic skills. Leon and Pepe (1978) have reported some promise with the CBM approach, while Wein and Nelson (1978) did not find the CBM technique helpful.

NEW TARGET BEHAVIORS

A variety of new target behaviors has also come under the scrutiny of CBM investigators. The full potential of a CBM approach was discussed by Rosenthal (in press). *Ted Rosenthal* (Memphis State) has written a comprehensive chapter that explores a cognitive-behavioral approach to a variety of clinical and social problems. The topics range from syntactical development through conservation skills to social adjustment problems. Rosenthal's chapter highlights the potential of the CBM approach for a variety of target problems that have not yet been systematically studied by CBM researchers. Two illustrations of the potential of CBM were offered by Casey (1977) and Oden et al. (1977).

William Casey (Buffalo) provided evidence that verbal self-instructions could be used to engender honesty in first- and fourth-grade children. *Sheri Oden* (Univ. Rochester), *Steve Asher*, and *Shelley Hymel* (Univ. Illinois) have developed a manual for training socially isolated children in social skills. The coaching procedure consists of verbal instruction of rules or strategies of behavior, rehearsal, and review of strategies (see Oden & Asher, 1977). *Diane Rathjen* (Rice Univ.) and her colleagues have an ongoing project to assess and train social competence in children.

A central feature of CBM treatment with children has been cognitive modeling. *Rafael Klorman* (Univ. Rochester) and his colleagues in a series of studies have examined the effects of coping and mastery modeling on pediodontic patients who had and did not have prior filling or extraction work. Inexperienced children who received either modelling condition were significantly less disruptive than inexperienced control subjects. Modeling did not affect experienced patients. Klorman et al's. work and the work of *Barbara Melamed* (Univ. of Florida) have indicated the potential of such modeling procedures in pediodontic situations. A useful review of this literature has been offered by Kirkland and Thelen (1977).

LANGUAGE IMAGERY AND SELF-CONTROL

The developmental work on self-control clearly indicates that the content and patterning of children's self-verbalizations play an important role in influencing the child's behavior. For example, a series of studies by Mischel and Patterson (1976), Patterson and Mischel (1976), Toner et al. (in press), Toner and Smith (1977) have all indicated the power of stated plans on self-control in children. As Mischel and Patterson (1976) state, 'whether or not a particular self-instructional plan will facilitate young children's self-control evidently depends not only on the substantive nature or content of the plan but also on its level of organization and structure' (p.950).

Walter Mischel (Stanford University) and *Charlotte Patterson* (Univ. Va.) have demonstrated the important role of substantive and structural factors in determining the efficacy of plans for self-control. Using a resistance to temptation task with preschoolers Mischel and Patterson (1976) found that resistance to temptation was facilitated only in a temptation-inhibiting (i.e. direct inhibition of attention to temptation) and a reward oriented plan (i.e., focus attention on rewarding consequences of continued work) and only when these plans were offered in elaborated form. In the elaborated form both the nature and actual wording of the plan were specified. Leaving the preschooler to generate his own version was less successful in facilitating self-control. The Mischel and Patterson findings indicate that the details of the plan must be specified if the plan is to be successful in facilitating young children's self-control. Toner et al. (in press) found that the evaluative statement ('I like' or 'I don't like') that accompanies the self-instruction significantly affects behavior. In short, there is a good deal that we need to learn about how the child's self-instructions come to guide and control behavior.

An interesting contrast to the approach taken by Mischel, Patterson and Toner is a recent study by *Robert Martin* (Ball State). In the former studies the child is put in a resistance-to-temptation task and is given or induced by the *E* to use specific self-verbalizations to control behavior. Martin (1978) examined the role of spontaneous private speech in influencing kindergarten children in a resistance-to-temptation situation. Martin found that children who spontaneously vocalized produced significantly longer delay time than their nonvocalizing counterparts, but interestingly the content of the subject's verbalizations was not as critical as whether subjects said anything at all. Thus an interesting enigma arises where experimenter-elicited conditions reveal very sensitive changes as a result of the manipulation of self-verbalizations, while, at least in the Martin study, content was less important. A major variable may be the nature of the task. As Murray (1975) demonstrated, the type of spontaneous verbalization plays an important role in a more demanding (match-to-sample) task. We need to assess the pull of the task for certain kinds of speech in studying the role of self-verbalizations in affecting behavior. In this regard Meachem (1978) discusses the use of language as a means of remembering the goals of future actions. Several other naturalistic studies of children's spontaneous private speech have also helped to elucidate relevant variables. Work by *Sherryl Goodman* (Emory Univ.), *Richard Roberts* (Univ. North Carolina, Greensboro), *Carol Diener* and *Carol Dweck* (Univ. of Illinois) *Karen Fuson* (Univ. Northwestern) have proven quite valuable. A forthcoming volume on speech regulation edited by *Gail Zivin* (Beaver College) should provide a valuable addition to this literature.

In discussing the role of language in facilitating self-control several observations should be noted. First, a number of studies have indicated that performance on so-called self-control tasks does not intercorrelate very highly (e.g. see Toner et al., 1977; Meichenbaum, 1978). Similarly, *John Masters* and *Craig Binger* (Univ. Minn.) have highlighted a distinction between instituting inhibition versus maintaining an inhibition. They suggest that interruptive inhibition constitutes a momentary intrusive type of self-control while continued inhibition represents a delay of gratification

(resuming an attractive behavior) or resistance to deviation.

This focus on language must not cause us to overlook the important potential role of imagery as a mediational device. Several recent papers (Meichenbaum 1978; Rosenthal and Scott, 1977; Singer 1978) discuss the use of imagery techniques with children. An illustration is a recent study by Saltz et al. (1977). They reported that training disadvantaged preschoolers on fantasy experiences (namely acting out fairy tales or enacting previous experience) altered children's cognitive functioning and impulse control, while simply listening and discussing were often no more effective than a control condition. The fantasy play condition that was more remote from reality was more effective than the more realistically oriented fantasy play. This is a provocative finding that, if replicable, has implications for CBM treatment with preschoolers.

CBM WITH ADULTS

The CBM work with adults could be examined from a number of perspectives. One could consider various CBM treatment approaches such as stress-inoculation vs. problem-solving approaches vs. RET and so forth. The approach adopted instead has been to cluster the studies according to the target clinical problem being treated (e.g., phobias, depression, pain, etc.). There are more studies listed in the reference section than could be reviewed in this space.

A major activity of CBM researchers has been to examine the relative efficacy of respective treatments. Since the last newsletter several very thoughtful presentations have been offered concerning pitfalls and guidelines for conducting such research. See in particular Gottman and Markman, 1978; Kazdin and Wilson, 1977, 1978; Jacobson and Baucom, 1977; and the August 1978 issue of the *Journal of Consulting and Clinical Psychology* which is devoted to methodological issues in outcome studies. The recent article by Mash and Terdal (1977) is also quite helpful in describing the problems in obtaining follow-up data from treatment studies.

Finally, an aspect of research that has not received sufficient attention has been discussed by Goldman (1976). In a call for a revolution of counseling research Goldman deplores the current situation in which empirical studies of little or no impact on professional practice have flourished. Goldman identifies a number of shortcomings in the research in counseling that contribute to this situation. These shortcomings apply to all modes of treatment intervention, including CBM. Goldman's suggestions for change bear careful consideration.

PHOBIAS AND PERSISTENT AVOIDANT BEHAVIOURS

The major thrust of the CBM approach with regard to phobias has been twofold: first, to assess the role that cognitions play in engendering phobic reactions and second to consider how in vivo exposure and participant modeling procedures could be supplemented by means of including cognitive coping strategies. Any CBM approach to phobias must recognize the accumulated evidence that demonstrates the effectiveness of in vivo exposure as the best means of reducing fear. For example, after reviewing over 300 studies of behavioural approaches to anxiety reduction Marks (1975) concluded that 'real life exposure is the most powerful therapeutic so far.' With this in mind let us consider what a CBM approach can contribute to such in vivo procedures.

Manuel Zane (White Plains Hospital) has provided a phenomenological description of the phobic patient and the manner by which phobias engender their own fear by means of producing new thoughts and images of anticipated dangers. Zane (1978) includes transcripts of his in vivo participant modeling (what he calls contextual treatment) on how one can help phobic clients interrupt the fear-engendering ideation and affect.

May (1977a, b) has provided evidence that self-regulated thoughts such as phobic ideation have pronounced effects on an individual's physiological functioning. In fact some phobic subjects found it difficult to 'turn off' phobic thought.

Emmelkamp et al. (1978) compared cognitive modification vs. prolonged exposure in vivo in the treatment of agoraphobics. The cognitive modification program focused on irrational beliefs ala Ellis, and coping strategies. Behavioural rehearsal was not included in the training, which lasted for 5 two-hour sessions. The prolonged exposure was found to be more effective than the cognitive restructuring procedure. These results confirm previous findings that group exposure in vivo is probably the most effective behavioral treatment for agoraphobics. Note in most instances of CBM treatment in vivo homework assignments are included. As Emmelkamp et al. note, the question is whether cognitive elements add anything to the in vivo treatment. The in vivo exposure may provide the most useful means of altering the client's cognitions.

Denney et al. (1977), in an analogue research study, compared modeling, behavioral rehearsal and self-verbalization training in reducing fear of spiders. From the vantage point of CBM, it is worth noting that self-verbalization training had a significant influence upon both behavior scores and self-reported anxiety scores, thus augmenting the effects of participant modeling. The self-verbalization of counterphobic coping self-statements while practicing counterphobic behaviors enhanced treatment efficacy. But one must provide a caveat with regard to these results in light of Mathew's (1978) recent review of the questionable relationship between analogue studies and clinical treatments studies.

V. Guidano and *G. Liotti* (Univ. Roma, Italy) have offered a cognitive behavioral levels analysis of agoraphobia.

Kato and *Fukashima* (1977) have compared live vs. covert modeling and coping vs. mastery model charactertistics in reducing avoidance behavior. The results indicated that the live modeling was more effective than covert modeling and that a coping model was more effective than a mastery condition.

Peter McLean and *Robin Cappe* (Univ. British Columbia) have employed a CBM approach with individuals who have a fear of flying. They consider the characteristics of individuals who drop out of treatment, as well. The potential role of self-help procedures are discussed.

Any discussion of CBM research with avoidant behavior must take special note of the contributions of Al Bandura and his colleagues. One of the products of Bandura's work on avoidant behavior has been his proposal of a theory of self-efficacy to explain behavior change (see references on Bandura and his colleagues). A good deal of controversy has arisen about the adequacy of the self-efficacy construct to carry the burden of explaining behaviour change. In fact, a forthcoming issue of *Advances in Behaviour Research and Therapy* is devoted to critically examine the self-efficacy concept. An overlooked but interesting exchange on the self-efficacy concept has been offered by Smedsland (1978) and Bandura in the *Scandinavian Journal of Psychology*. Bandura's concept of self-efficacy indicates the powerful role of performance and outcome expectancies in mediating behavior. (Also see Wilkins, 1977, for a review of the expectancy literature.) On the one hand I am in sympathy (not that he needs my sympathy) with Bandura's concept of self-efficacy for it highlights the fact that the client's internal dialogue and images about his coping skills, and not the coping skills *per se*, represent an important element in the behavior change process. This clinical concern is evident in the CBM treatment package of stress-inoculation described below. My reservation involves the fact that expectancies represent only one element of the internal dialogue surrounding the implementation of the particular coping skills. Furthermore the notion that the self-efficacy construct can be extended to explain all elements of psychotherapy when the examples offered only come from snake avoidant studies is a leap of faith -- a leap that requires a good deal of self-efficacy expectancy. Also consistent with Smedsland's suggestion that we should translate Bandura's

social learning notions into non-technical language, I might ask if what is being demonstrated in the Bandura's studies is nothing more than the fact that, 'If you ask someone if he can do something he will answer your question. And in most circumstances the answer will be a fairly good predictor of whether or not he will do it.' The likelihood that the individual's answer will be a good predictor of future behavior is increased if the query is made in close proximity to the to be predicted behavior and if the question was asked in private, under conditions that provide incentive for veracity and do not arouse evaluative apprehension.

SOCIAL ANXIETY AND ASSERTIVENESS

Following a consideration of procedures that are designed to assess the role of cognitions in contributing to social anxiety, we will consider a host of comparative outcome studies.

Marion MacDonald (Stony Brook), in a very thoughtful analysis, has evaluated the concepts of assertion, aggression, and submission (MacDonald, in press). Her approach is exemplary in providing a useful model of how one might study a construct and develop an instrument. This type of study is surely needed since we tend to armchair our dependent measures. Are refusal behaviour in a telephone situation or the host of other dependent measures used in assertion training studies indeed measuring assertion? How can we determine whether a particular challenge or manipulation is viewed by the subject as a situation calling for assertiveness? MacDonald's work provides a useful beginning, as do the cognitive assessment procedures described below. Further evidence that we should be cautious in defining assertiveness on an *a priori* topographical basis was offered by *Julian Ford* (Univ. of Delaware) and *Hogan* (1977) who assessed the role of particular characteristics such as eye contact, vocal loudness, fluency, on judgment of assertiveness. Although some of these behaviors are included in observational scales of assertiveness, Ford and Hogan question their valence and meaning as signs of assertiveness.

John Cacioppo (Notre Dame), *Carol Glass* (Catholic Univ.) and *Thomas Merluzzi* (Notre Dame) conducted a very nice study on the role of self-statements in social anxiety. They identified high and low socially anxious subjects by means of Watson and Friend's Social Avoidance and Distress Scale and then prepared subjects for an interaction with an unfamiliar female. The subjects' self-statements during a waiting period were assessed by means of a thought listing procedures. The thought listing procedure asks the subject to list on a page (one thought per box) everything that went through his mind about the upcoming discussion. The subjects were only given 2.5 minutes to write. The purpose of the short time is to pull for dominant thoughts. Afterwards the subjects were asked to rate each thought in terms of whether it was favorable toward yourself (+), unfavorable toward yourself (-), or neither favorable nor unfavorable toward yourself. Similar ratings of the thoughts were obtained by raters who were blind to the subject's level of anxiety and the condition under which they were run, namely, whether the interview were face to face or anonymous (use of intercom). The thought-listing procedure holds much promise as one means of assessing subjects' self-statements (see Cacioppo and Petty, 1978 for a review). Cacioppo et al. (1978) found that (i) high anxious subjects spontaneously generated more negative self-statements and when evaluating themselves on a semantic differential, considered themselves significantly less potent and less active than did low socially anxious men. Interestingly, the high and low socially anxious men perceived their self-statements similarly even though judges perceived the self-statements as clearly distinguishable. The anonymity condition did not interact with the dependent measures. Cacioppo et al.'s study should be replicated with clinical populations and behavioral performance should also be assessed. There now appears to be a reasonable battery for the assessment of cognitive factors in social anxiety including (1) measures developed by Schwartz and Gottman (1977) to assess subject's knowledge of social skills as well as post-performance questionaire to assess thoughts during a role playing situation, (2) Fiedler and Beach's (1978) instrument to assess expectations and, (3) Cacioppo et al. thought listing assessment procedure. It would be useful to examine the interrelationship of these measures and to relate them to actual performance. Performance, however, should not be limited to only the subjects reaction in a lab room, but how the subject engenders and constructs social situations. A conceptual model for the assessment of such social competence has been offered by Meichenbaum, Joseph and Butler (1978).

Decky Fiedler (Pacific Lutheran) has developed an innovative and important way to assess the expectancies of subjects in social situations. She uses a decision making model to assess subjects expectancies in social situations, either presented via written scripts or videotapes.

Smye (1977) conducted a component analysis of social anxiety using a videotape reconstruction procedure to tap the cognitions subjects had while responding to simulated videotaped scenes.

James Curran (Brown Medical School), *Jan Wallander* and *Mario Fischetti* (Purdue Univ.) conducted an important study to further specify the nature of the deficit in heterosexually socially anxious subjects. They used a videotape feedback procedure in which subjects were asked to evaluate themselves, as well as the performance of bogus subjects. Interestingly, while all subjects were accurate in rating the perfomrance of 'bogus subjects', the high anxious/high skill subjects underestimate (in comparison to judges ratings) their own skill while high anxious/low skill subjects accurately assessed their performance. These results have important implications for diagnosis (i.e., the need to conduct a careful task analysis) and for treatment. It also raises the possibility of an important new assessment element namely, the evaluation of one's own performance.

Fischetti et al. (1977) indicated that a major skill deficit in heterosexual socially anxious males is the absence of a sense of timing of responses. They indicate that studies that merely focus on frequency counts of specific measures may be missing an important aspect of the phenomenon.

Given the concern with subjects' cognitive processes in social situations a number of situation-specific scales have been developed that bear examination, viz, Carver and Glass's (1976) self-consciousness scale and Pilkonis's (1976) shyness survey.

Levinson and *Gottman* (1978) have developed a self-report measure of social competence in dating and assertion situations for college students that may prove valuable to CBM investigators.

Eisler et al. (1978) have reported on the role of cognitive variables in the expression of assertiveness in psychiatric patients. Behaviorally assertive patients generally expected more positive or reinforcing consequences from their interactions with others than relatively unassertive individuals. As Eisler et al. indicated, the limited generalization effects of assertion training noted in the past may, be in part, be due to therapeutic inattention to the passive indidivual's negative attitudes about assertiveness.

Halford (1978) conducted three studies on the nature of social anxiety. He found that a social skills plus cognitive restructuring treatment group was more effective in fostering assertiveness than either treatment package alone. Halford's study provides further evidence that focusing on cognitive factors enhances treatment efficacy for assertion problems

Jane Engeman, *Matthew Campbell* and *John Steffen* (Univ. Cinncinatti) have described a group CBM social skills program with a clinical population (Engeman et al., 1977). They offer several useful suggestions concerning how CBM treatment should be altered when used with a clinical as compared to a university volunteer population. Such factors as the role of client resistance, and expectancies, as well as the important role of the group process were highlighted. Greater

consideration needs to be focused on the problems arising from CBM treatment with clinical populations.

Linda Wilcoxon-Craighead (Penn State) in her doctoral dissertation provided evidence for the effectiveness of self-instructional training for assertive difficulties. She examined the differential efficacy of the CBM procedures with friends versus acquaintances and found that changes in assertion with friends appeared to respond more to nonspecific aspects of therapy than did situations involving acquaintances. Such consideration of the generalization processes following from treatment are sorely needed. Another variable examined was the degree of involvement in situations.

Michael Neitzel, Raymond Matorano, and *Joseph Melnick* (Univ. Kentucky) assessed the relative efficacy of covert modeling vs. rational restructuring, both using an imagery procedure, in fostering assertiveness. At the followup the two CBM groups were found to be more effective than a relaxation imagery, a demand-change and a waiting list group. The Neitzel et al. (1978) study raises some interesting questions of exactly how mental rehearsal or 'work of worrying' processes can be used in therapy.

Shahar (1977) compared rational restructuring vs. self-control desensitization in the treatment of interpersonal anxiety. The differential efficacy of the two treatment procedures depends on which dependent measure one considers. Also Shahar examined the interaction between subject characteristics and treatment mode. Shahar suggests that eight sessions seemed to be too few to adequately conduct the rational restructuring treatment. Future research should keep this in mind.

Michael Weissberg (W. Illinois Univ.) compared desensitization, desensitization with coping imagery and cognitive modification in the treatment of speech anxiety. The three treatments were found to be effective, relative to an assessment control group, in reducing speech anxiety. One of the restrictions on efficacy may be the limited number of treatment sessions (only 6 hr. in the Weissberg study). Whereas the addition of coping imagery and modeled coping processes were found useful in previous studies, Weissberg did not find that the coping imagery added to the desensitization process.

Paul Derry and *Gerald Stone* (Univ. W. Ontario) compared cognitive self-statement treatment, attribution training and behavioral rehearsal in enhancing assertiveness. The cognitive self-statement treatment was the only group associated with maintenance and generalization of assertive responses, including increased internality on a locus of control scale. Derry and Stone's results are consistent with the findings of Schwartz and Gottman (1976), that at least with college students the problem may not be 'knowing' how to be assertive, but rather how to get themselves to be assertive. *Richard Rakos* and *Hal Schroeder* (Kent State) have reported (1978) the efficacy of a CBM self-administered assertiveness training program relative to self-administered relaxation training. The program was presented on audio cassette tape and included an accompanying manual. A complex multifaceted treatment included didactic information on the basis of self-management, definition of assertive behavior, self-analysis of specific deficits, cognitive restructuring, the role of obligations and refusal behavior and real life experimentation. Obviously it would be difficult to identify the active ingredients, but the study indicates the potential of evaluating such self-help procedures.

William Fremouw (W. Va. Univ.) and *Robert Zitter* compared public speaking skills training vs. cognitive restructuring relaxation training for the treatment of speech anxiety. Both groups were effective in reducing anxiety as evidenced in both behavioral and subjective measures of speech anxiety. Most importantly, neither treatment alone evidenced reduction in other types of performance anxiety, whereas Fremouw and Harmatz (1975) found that the combination of skills training and cognitive restructuring produced generalized improvement in performance anxiety. In contrast, Glass et al. (1976) and Meichenbaum et al. (1971) reported significantly greater generalization from the cognitive restructuring as compared to the response acquisition and desensitization treatments, respectively. Perhaps one of the factors limiting generalization in the Fremouw and Zitter study is that the CBM treatment only received 5 hours, compared to 8 hours in the Meichenbaum et al. study.

Dirk Zimmer (Tubingen, W. Germany) compared behavioral training *vs.* self-regulation training in improving assertive behavior. The self-regulation (ala Kanfer) considered the role of self-evaluation, self-instruction and self-reinforcement. A combination of behavioral training *plus* self-regulation training was found to be most effective.

Carmody's (1978) recent study on CBM for assertion problems indicates the need to individualize treatment and the need to provide sufficient number of training sessions. Carmody describes a series of reasons why CBM treatment may not have proved more effective.

D'Amico (1977) provides some case studies how CBM procedures can be employed in assertive training with adolescents.

Bennett (1978) examined the efficacy of interpersonal coping skills training on high school students. Bennett's study adds to a series of studies reviewed in the earlier newsletters on the potential value of such training.

Pam Highlen and *Nancy Voight* (Univ. W. Ontario) have explored the usefulness of social modeling, cognitive structuring and self-management strategies in facilitating the expression of feelings. The combination of the treatments was found to be most effective. The sample size and the short-term training limit the conclusion that can be drawn, but the study is a nice pilot for future research. The authors call for a task analysis (ala Schwartz and Gottman, 1976) in future studies of affect expression.

Finally, since assertion training is a target behavior that has received much attention by CBM therapists (e.g., Bower and Bower, 1976; Lange & Jakubowski, 1977), a recent article by Hollandsworth and Wall (1977) on sex differences in assertive behavior may be of interest. Although Hollandsworth and Wall restrict their assessment to self-report measures (Adult Self Expression Scale) and mainly college students, they report sex differences in assertive behavior and the implications this has for the composition of training groups. Rathjen et al. (1978) have provided a useful summary of CBM procedures for enhancing social performance. The list of CBM techniques offered by Rathjen et al. is becoming almost as long as the list of behavior therapy techniques once offered by Ullmann and Krasner.

TEST ANXIETY

The important role of cognitions in contributing to and maintaining test anxiety has been noted by a number of investigators. Many important chapters (e.g., Deffenbacher, Denney, Wine, Meichenbaum et al.) have been assembled by Sarason (in press). The overwhelming impression from these papers is the intimate role that cognitions play and the potential usefulness of a CBM approach for the treatment of test anxiety.

The potential value of CBM for the treatment of test anxiety was highlighted by *Doug Denney* (Univ. of Kansas). In a chapter on self-control approaches to the treatment of test anxiety, Denney (1978) indicates that '50% of all recent behavior therapy studies and 67% of those studies involving systematic desensitization have *failed* to find differences between treated and untreated control conditions on performance measures of test anxiety'. Somewhat greater optimism is afforded, however, if one examines the self-control and CBM procedures. Denney distinguishes three categories of treatments. 'Only 33% (1 of 3) of the studies in the category of applied relaxation techniques and 50% (4 of 8) of the studies in the category of self-control training revealed

improvements on performance measures, whereas 71% (5 of 7 of the studies in the category coping techniques demonstrated improvements in these types of measures' (p. 35 and 36).

In order to appreciate the reasons why CBM should prove useful in the treatment of test anxiety let us first consider some of the deficit studies that have been conducted with test anxious subjects; then we can consider more recent treatment studies not included in the Denney tally.

The cognitive reappraisal treatments that have been found successful in ameliorating test anxiety are consistent with the deficit studies of test anxiety. For example *Irwin Sarason* and *Rick Stoops* (Univ. Washington) have offered evidence that highly anxious persons under stress experience cognitive interference and preoccupation that makes time pass slowly and results in poor performance (1977). Sarason and Stoops performed three experiments designed to examine the relationship of test anxiety and achievement-oriented instructions on time perception. The results confirm the conceptualization that test anxiety should be viewed as 'a form of self-preoccupation characterized by self-awareness, self-doubt and self-depreciations that influences overt behavior and psychological reactivity' (Sarason and Stoops, 1978, p.103). Sarason and Stoops go on to suggest that the self-preoccupying thoughts of highly anxious individuals influence the 'attentional focus on environmental cues; distort encoding, transformation and planning strategies; and influence responses that may be selcted to cope with challenges' (1978, p. 103). Further evidence for an attentional theory of test anxiety was offered by Deffenbacher (1978). Deffenbacher noted that the lower performance of the highly anxious is not a simple artifact of ability, since the highly test anxious perform as well as or better than the less anxious when the stress is low. Evaluative stress appears to elicit behaviors which interfere with performance of the highly anxious. Sarason (1972) and Wine (1971) have interpreted the performance deterioration in terms of selective attention,. Acording to this interpretation highly anxious individuals under stress respond with personalized, self-oriented responses which direct attention away from the task. Deffenbacher (1978) found that for the highly anxious, evaluative stress elicited interfering anxiety in the form of attention to worrisome thoughts and ruminations, physiological arousal and upset and elements of task irrelevancies. A low stress condition did not elicit this dysfunctional pattern of attention. An interesting aspect of Deffenbacher's findings was that neither worry nor task-generated interference was sufficient to interfere actively with performance, suggesting that interference may have to reach some critical level or threshold before performance begins to deteriorate significantly.

Jeri Wine (O.I.S.E. Toronto) has provided a very thoughtful and important review of the test anxiety literature (Wine, in press). She forcefully argues, based on much recent data, for the rejection of the emotional reactivity view of evaluation anxiety and for a cognitive-attentional model of evaluation anxiety. Her chapter is rich with research and treatment implications.

Kirschenbaum and *Karoly* (1977) have reported that negative self-monitoring led to a lowered self-evaluation, decreased favorableness of self-consequation (self-reinforcement/punishment), to somewhat increased association of anxiety with performance and to decreased accuracy in performance by college students doing mathematics problems. The Kirschenbaum and Karoly results nicely parallel the findings by Masters and Santrock (1976) (see CBM 3, p. 12) that children persisted less at a motor task when they became self-critical instead of self-praising. In short, these studies indicate that the emotion accompanying particular thoughts affects performance.

James Hollandsworth (Univ. of Southern Mississippi) and his colleagues (Robert Glazeski, Karl Kirkland, Gary Jones and Laura Van Norman) have conducted a very innovative and important assessment study on the cognitive, behavioral and physiological components of test anxiety. They used a videotape reconstruction in which test anxious *Ss* were asked to reconstruct their ideation. Consistent with the findings of Hollandsworth and his group were the findings of *Holroyd* et al. (1978), who reported that high and low test anxious subjects did not differ in terms of their physiological arousal, but instead differed in how they appraised their arousal. These findings are important in further implicating the therapeutic role of CBM intervention.

Morris et al. (1978) have developed a math anxiety rating scale that taps the nature of the subject's worry about performance in situations involving the use of mathematics, while Betz (1978) has noted the widespread prevalence of math anxiety in college students. Interestingly, math anxiety correlates only moderately with overall test anxiety, indicating the necessity of a differential assessment. Math anxious students seem to be prime candidates for CBM intervention. A recent study by Hendel and Davis (1978) has outlined such an intervention strategy for reducing math anxiety.

Margaret Kendrick (Univ. British Columbia) has an ongoing project to assess both the self-statements and expectancies of personal efficacy of pianists. A combination of Kendrick's work and Joseph's work would be most interesting. *Linda Joseph* (Univ. Waterloo) has developed a sensitive, reliable observational scale for piano practice. With these measures the field is now ready for a CBM training study (perhaps using cognitive coping modeling films).

One of the strategies that has been employed by CBM researchers has been to examine how particular 'behavior therapy' techniques can be altered in order to increase the likelihood of their efficacy and generalization. Illustrative of this approach has been the work on desensitization. *Deffenbacher* and *Payne* (1977) have successfully used an in-vivo relaxation-as-self-control procedure to treat communication apprehension. A cue-controlled relaxation format was employed, in which the client is asked to covertly say the word 'relax' before releasing each muscle group (see Russell, Miller and June, 1975, for a description of this procedure). Although the Deffenbacher and Payne study mainly employs self-report measures, the study adds to the growing literature of the potential value of employing a relaxation-as-self-control model. Deffenbacher and Payne cite several other studies that underscore the value of modifying the desensitization format within an active coping conceptualization.

Further support for the self-control version of densitization was offered by *Denney* and *Rupert* (1977) who found that an active coping rationale was more effective than a passive reciprocal inhibition rationale in reducing students' test anxiety. Although both the traditional and self-control versions of densitization were equally effective in reducing debilitative anxiety, only the self-control desensitization procedure was effective in enhancing facilitative anxiety. This latter finding is consistent with the results of Wine (1972) and Meichenbaum (1972). In addition, Denney and Rupert found significantly higher grade point averages during later semesters following the study, only for the active-self-control group. There were no significant differences in academic performance at the end of the semester during which subjects participated in the study. These findings indicate the need for delayed followup measures. The improvement in grades for the self-control densensitization group takes on particular meaning since Allen (1972) concluded that densensitization (as traditionally conducted) was seldom effective in increasing students' academic performance as evidenced by final grades or grade point averages. The Goldfried (1971) based self-control procedure employed by Denney and Rupert share, several similarities with the anxiety management procedures of Suinn and Richardson (1971) and the cognitive modification procedure of Meichenbaum (1971). As Denney and Rupert indicate, the various techniques (1) are all introduced to subjects with active coping rationales; (2) the procedures attempt to teach subjects to use feelings of anxiety as cues for emitting

adaptive coping responses, especially responses involving the relaxing away of tension; and (3) the procedures encourage subjects to employ these self-control skills in actual anxiety provoking situations.

The suggestion that various treatments, such as relaxation-based densensitization, may not work as originally hypothesized has been supported by a series of studies by *Jerry Deffenbacher* (Colorado State Univ.). Deffenbacher indicated (personal communication) that relaxation-oriented intervention reliably reduced worry, but only partially reduced emotionality which is inconsistent with the notion that relaxation reduces physiological arousal or perception of arousal. Several recent Deffenbacher papers support this observation. In particular, a recent study by *Deffenbacher* and *Hahnloser* (1978) demonstrated that the combination of cognitive coping skills and relaxation coping skills was most effective in reducing test anxiety, both immediately and over a follow-up period. Deffenbacher and Hahnloser cite six other studies that provide similar results.

Another study that indicated the potential value of group cognitive therapy was conducted by *Holroyd* (1977) with test anxious subjects. Holroyd found that cognitive therapy was more effective in reducing anxiety in an analogue test situation and in improving grade point average than desensitization, or the combination of desensitization and cognitive therapy. The cognitive therapy was designed to (1) make test anxious clients aware of distracting and anxiety engendering thoughts which they emit both prior to and in test taking situations; (2) to explicitly train them to emit incompatible self-statements that were designed to facilitate task attending in stressful situations; and (3) to suggest alternate and relatively benign ways of interpreting and labeling the emotional arousal that is invariably elicited by evaluative situations. The cognitive therapy rationale emphasized that group members could master thier test anxiety by learning to control task irrelevant ruminations that generate anxiety and distract attention from the task. After the group members came to identify such ruminations and their behavioural impact, the therapist questioned the logic and validity of these statements and encouraged subjects to devise and implement alternate coping self-statements.

Hussain and *Lawrence* (1978) provided evidence for the efficacy of stress-inoculation for the treatment of test anxiety at both a 3-week and 9-month followup. Moreover, they examined the relative efficacy of test-specific *versus* generalized self-statements as part of the stress-inoculation format. For example, coping generalized self-statements included 'One step at a time, I can handle the situation,' and coping specific self-statements, included 'I know I'm well prepared for this test, so just relax.' The results indicate that the task-specific coping strategies were more effective in reducing test anxiety. These findings are consistent with the findings of *Glogower, Fremouw* and *McCrosky* (in press), who conducted a component analysis of cognitive restructuring techniques with communication apprehensive subjects. One treatment group focused on insight into negative self-statements while the comparison group focused upon knowledge and rehearsal of coping statements (similar to the Hussain and Lawrence task specific stress-inoculation group). Relative to an extinction (discussion) group and the insight group, the coping statement group improved the most. A treatment group that combined both insight into negative self-statements and coping self-statements was most effective in reducing anxiety. The results suggest that while both components produce some improvement, the coping statement component is of primary importance to cognitive restructuring. Note that the relative contribution of insight into negative self-statements, coping self-statements, and the production of behavioral acts may vary with the particular client. In the case of evaluation anxiety the most effective mode of intervention may be to focus upon the internal dialogue by training coping skills.

Marv Goldfried, Marsha Linehan and *Jean Smith* (1977) have provided evidence that focusing on cognitive reappraisal of anxiety-provoking situations results in a markedly effective treatment procedure for the reduction of test anxiety. In a collaborative study that required parallel treatment at Stony Brook and Catholic University, the authors compared a rational restructuring procedure vs. a prolonged exposure condition (i.e., same hierarchy of situations vs. waiting list control. The rational restructuring therapy resulted in greater reduction of test anxiety, providing further evidence for a cognitive-reappraisal therapy approach. (See CBM newsleter 3, p. 19 for a fuller description of this fine study.)

Lent and *Russell* (1978) have reported that a combined cue-controlled-desensitization plus study skills program was more effective than a study skills course alone, or a traditional densensitization in combination with study skills, in reducing test anxiety. Such multicomponent treatment interventions indicate the necessity of assessing the nature of the problem dimensions (e.g., test performance, study habits, poor grades).

Don Dansereau (Texas Christian Univ.) and his colleagues have used a CBM approach to help students control negative affect during academic tasks (Collins, et al. 1978). They compared self-initiated relaxation (SIR), a CBM self-coaching (SC), and the combination (SIR and SC) and found that the combination was most effective, with the self-coaching next most effective. The combined treatment (SIR and SC) did not exhibit better performance uniformly, but evidenced superiority on measures that required more affect control. The Collins et al. results corroborate findings by Deffenbacher (1972), Holroyd (1977), Meichenbaum (1972), and Novaco (1976), that a combination of cognitive intervention and relaxation is more effective than the individual components alone.

Steve Richards and *Michael Perri* (Univ. Missouri) conducted an important study on the issue of treatment maintenance. Using volunteer college students who were seriously concerned about academic underachievement, Richards and Perri examined the maintenance of treatment effects at 6 weeks, 12 weeks, and one year posttreatment. A problem solving maintenance strategy ala D'Zurilla and Goldfried (1971) was found to be most effective. Richards and Perri note the value for experienced counselors to conduct such problem solving training, an observation shared by Coche and Fleck (1978). A detailed treatment manual by Richards and Perri is available from *JSAS* document service – see article for details.

The importance of the Richards and Perri study goes beyond the specific treatment intervention with academic problems. Rather, the study provides a much needed prototype of CBM procedures and our research efforts should be directed at improving maintenance or what others have called adherence or compliance.

Hymen and *Warren* (1978) successfully employed rational-emotive therapy in the treatment of test anxious college students. They did not find any differential efficacy when rational-emotive imagery was or was not included in the treatment regimen. The imagery procedure involved becoming aware of anxiety and specific irrational self-verbalizations and then disputing these and substituting more rational facilitative self-talk.

A component analysis of the self-control process has been offered by *Greiner* and *Karoly* (1976), who found that neither training in self-monitoring alone nor self-monitoring plus self-reward techniques yielded better performance than mere training in study methods. Only the group that received training in self-monitoring, self-reward and planning strategies significantly outperformed the other groups on a variety of school related measures. These results underscore the importance of planning strategies as an aid to behavior control. The planning involved training in how to break down large tasks into smaller, more manageable units, how to schedule study time to avoid last minute cramming, and how to set up appropriate rewards for successfully completing planned tasks. The findings of the importance of planning in facilitating self-control underscores the comments made earlier on the role of metacognitive processes, or the 'plans needed to make plans'.

The following description of the Finger dissertation is a

corrective update from that presented in the last newsletter. Finger did not compare cognitive therapy vs. relaxation as mistakeningly indicated in the last newsletter, but instead compared two cognitive techniques. *Finger* and *Glassi* (1977) have evaluated the Liebert and Morris (1967) view of test anxiety, which specifies the existence of two components, emotionality and worry responses. By assigning test anxious subjects to one of four groups: attentional treatment, relaxation training, combined attentional and relaxation and waiting list control, Finger and Galassi attempted to differentially influence the respective components of worry and emotionality. The treatments were found to be effective in altering various self-report indices, but not performance measures. There was no evidence for differential efficacy of the respective treatments upon the worry and cognitive responses. Finger and Galassi take this later result as evidence questioning the Leibert-Morris model of test anxiety. Although Finger and Galassi's criticisms of the two-component model of test anxiety seem valid, one could question whether one should expect various treatments to have differential effects. It is likely that attentional training may convey a sense of control to test anxious clients, which would result in alterations of emotional reactions; similarly relaxation may decrease the likelihood of producing task-irrelevant ideation or the worry component. The notion of establishing isomorphic relationships between the mode of intervention and the component of test anxiety represents an simplified view of the anxiety condition. An alternative model of the nature of anxiety has been offered by Lazarus and Averill (1972) and Meichenbaum and Butler (1979). These models offer a much more transactional process model of anxiety.

The absence of treatment efficacy on performance measures in the Finger and Galassi study is consistent with the literature. Finger (1975), in a comprehensive review of the test anxiety literature reported that performance improvements were obtained in only 16 of 54 (26.9%) studies. At best only a limited optimism can be offered. Moreover, Finger and Galassi call for a more careful examination of the relationship between anxiety and performance, a point that Meichenbaum and Butler underscore. To illustrate this point, consider the nature of the student who constantly bemoans to his/her compatriots how anxious he or she is, how poorly he or she did on the exam, but from past experience the compatriots recognize the likelihood that this student 'creamed' the exam and ruined the curve. Such on example questions the nature of the test anxiety-performance relationship procedure.

STRESS REACTIONS

A major concern of CBM researchers has been the use of cognitive and behavioral techniques to treat a variety of stress reactions. One new thrust in this area has been the use of stress inoculation procedures on a preventative basis. But before summarizing these studies it is important to recognize a set of recent papers by *Richard Lazarus* (Univ. Calif., Berkeley) and his colleagues. A full review of Lazarus's work is beyond the scope of the present newsletter, (see referenced articles), but several of his observations about the coping process bear special comment. In one paper with *Ethel Roskies* (Univ. Montreal) Lazarus discusses the complex nature of the coping process, indicating the role of palliative as compared to directive coping mechanisms. By palliative methods of coping Roskies and Lazarus are noting the role of such mechanisms as denial, avoidance, etc., as compared to what CBM therapists have been emphasizing as active problem-solving and coping processes. Given the fact that coping with stress is so complex Lazarus's writings should give pause to CBM-types who propose the use of one specific set of coping responses, not taking into consideration both the short-term and long-term effects of the coping process. Lazarus also takes issue with Albert Ellis's emphasis on reality testing and the role of (ir)rationality as a contributor to emotional disorders. Lazarus's searching eye and integrative approach cover a variety of topics, including Type A personality, coping responses in holocaust victims, etc. His writings have important implications for CBM research and treatment. Another seminal contribution was the work by Janis and Mann (1978) on decision making. Now to others who have contributed to this growing CBM literature in stress management and stress prevention.

An important article that helps to put the stress-inoculation training in some perspective was offered by Pearlin and Schooler (1978). They examined the range of situations in which concrete coping behaviors are most useful by means of an extensive interview study with 2300 people in the Chicago area. Their results are rich. Among them is their finding of the role of self-denigration in interfering with coping behaviors. Consistent with the multifaceted stress-inoculation approach, Pearlin and Schooler found that having a variety of coping skills or a varied repertoire is more effective than having a single coping response, regardless of its efficacy. Moreover, coping efficacy must include not only an account of what people do, but where they do it. Some kinds of coping mechanisms are not equally effective in different role areas. Finally, they found that groups most exposed to hardship were the least equipped to deal with stress, thus underlying the need for preventative approaches. The Pearlin and Schooler findings provide further impetus for the need for research on stress-inoculation procedures with high-risk populations. Some high-risk populations that may be candidates for stress-inoculation include: (1) teachers (Kyriacous and Sutcliffe, 1977); (2) air traffic controllers (see Barrett et al. 1978 on depression in controllers, or Ilfield, 1977, for a discussion of the relationship between social stress and depression), (3) those who have been involved in a divorce (Bloom et al., 1978), (4) the widowed – Carry (1977) reports that 25% of the widowed were still depressed after one year. Carry has developed an 8-item self-report measure of adjustment-depression that may be employed in the identification of those who are at risk. (5) wives of severely brain injured soldiers constitute another potentially high-risk population (Rosenbaum & Najenson,, 1976), 6) survivors of someone who commited suicide; family and friends (7) women in management (Terborg, 1978).

A number of investigators are currently exploring stress-inoculation training. They include: (1) *Matt Jaremko* (Univ. Richmond), who is examining a component analysis of stress-inoculation; (2) *William Fremouw* (West Va. Univ.), who is studying the role of individual differences in response to stress-inoculation; (3) *Lois Vernonen* and *Dean Kilpatrick* (Medical Univ. South Carolina), who are exploring the use of stress-inoculation with rape victims, and (4) *Ken Holroyd* (Ohio Univ.), who is exploring the use of stress-inoculation with psycho-physiological disorders, (5) *Dennis Turk* (Yale Univ.), and *Etta Rybstein- Blinchik* (New York Univ.) and *Myles Genest* (Univ. of Waterloo), who are independently exploring its usefulness with pain patients, (6) *Ray Novaco* (Univ. Calif. Irvine), who has worked with anger control patients, (7) *James Reardon* (Founders Clinic, Columbus Ohio) who is examining the use of CBM with women undergoing abortions.

Irwin Sarason (Univ. of Washington) and his colleagues (see Sarason et al. 1978) have explored the potential usefulness of the stress-inoculation training regimen in helping police officers cope with stress (also see Novaco, 1977).

Phil Kendall (Univ. Minesota) and his colleagues have successfully used CBM stress-inoculation treatment regimen to intervene with catheterization patients (Kendall et al., 1977). The stress-inoculation training involved labeling the stress, identifying stress related cues, discussing cognitive coping procedures, reinforcing individual coping styles, modeling and rehearsing cognitive coping skills, and providing information about heart disease and catheterization procedures. Relative to an attention placebo group and hospital control groups, the stress-inoculation group evidenced greater postsurgery adjustment. Interestingly Kendall et al. included a self-statement inventory, (ala Schwartz and Gottman, 1976) and found

that negative self-statments related to poor adjustment ratings. The role of such negative self-statments in the coping response has been considered by Meichenbaum, Henshaw and Himel (in press). The Kendall et al. treatment is multifaceted and it is obvious that one can not identify the active ingredients from the present study. Moreover, the finding about the role of negative self-statements bears replication and extension.

Lorne Hartman (Ottawa Civic Hospital) and *Ernest Poser* (Mcgill Univ.) have been exploring the usefulness of a CBM preventative approach with high-risk adolescents. The treatment package includes self-management skills, anxiety management skills and social skills training. The prevention package is designed to promote awareness of maladaptive cognitions and to teach new coping styles applicable to anxiety-arousing situations. (See Hartman and Poser, 1977.)

Michel Girodo (Univ. Ottawa) and his colleagues have conducted a series of studies on coping self-talk as a coping device. In considering the set of studies by Girodo and his colleagues (i.e., Girodo & Roehl, 1978), it is necessary to recognize that stress-inoculation training is much more than the focus on coping self-statements. Inherent in the stress-inoculation procedure is (1) the client recognizing the role that his/her own cognitions play in engendering anxiety; (2) this gives rise to a (re)conceptualization of the presenting problem (e.g., fear of flying) and in turn, (3) a host of coping techniques are practised, among which coping self-talk strategies represents only one element. In a collaborative manner, the therapist and clients then rehearse either in vivo or by means of imagery role playing, and so on, the behavioral (usually relaxation) and cognitive coping strategies. Girodo has mistakeningly equated the stress-inoculation package with only self-talk. This would be similar to someone equating desensitization with only imaging the steps of the hierarchy. Girodo and his colleagues' work indicates that more is needed than the focus on coping self-talk, although for some problems such a focus may prove sufficient. The inadequacy of a self-talk approach *per se* underscores the need to include the other elements in stress-inoculation training.

The potential adjunctive therapeutic value of CBM procedures recently has been noted by *Rosenman* and *Friedman* (1977) who describe how self-instructional training and cognitive-behavioral interventions can be included in a treatment regimen designed to modify Type A behavior patterns. *Suinn* and *Bloom* (in press) have reported on the use of an anxiety management training for type A persons.

William Mygdal (Waco Texas) assessed the relative efficacy of anxiety management training and stress-inoculation vs. two control groups in reducing stress in student teachers. Neither of the two treatment procedures was very effective in reducing stress, although the initial stress levels did not appear to be very high. Mygdal also highlights confounding problems with subject mortality and irregular attendance. The Mygdal study does indicate some potential assessment measures that may be used in studying teacher stress. The recent study by Peterson et al. (in press) in which they obtained think-aloud data from teachers would provide a very nice measure of stress effects. Future studies with teachers should consider the Peterson et al. paradigm.

Gibson and *Papsdorf* (Uhiv. Michigan) have used a biofeedback assisted stress-inoculation therapy in the treatment of counseling anxiety. This complex therapy package was more effective than a non-specific discussion insight group and a control group.

David Holmes (Univ. Kansas) and his colleagues have questioned the usefulness of respiration *per se* as a means of controlling responses to threat. Instead they found that subjects who can employ self-generated cognitive coping strategies perform most adequately in dealing with electric shocks.

Avery Weisman and *Harry Sobel* (Mass. General Hospital), in a provocative case study, reported on the coping style of a cancer patient by means of self-instruction. They highlight that the key to good coping consists of '(a) optimism or expectation that positive change is possible, (b) practicality about the kinds of solutions that are feasible, (c) flexibility in not insisting upon a rigid approach to any problem and (d) resourcefulness in finding support or additional information that helps implement behavior' (p. 14).

Finally, one major problem in considering prevention work is how to get the subjects who 'really need it' to participate. For example in one study, *Lindquist* and *Lowe* (1978) developed prevention programs for college freshmen. Out of 3713 students who were sent an invitation to join either a cohort or group program only 246 or 7% expressed an interest in participating. The dropout rate and grade point average data of the general sample indicated that those who need help most were least likely to volunteer for the programs. Parenthetically, it should be noted that the two prevention programs offered by Lindquist and Lowe were viewed as effective by their participants but they did not reduce dropout rates, nor improve grade point average.

PAIN

The CBM work on pain can be summarized under three headings. First a number of review and theoretical papers were written that compared behavioral and CBM approaches and that examined the use of cognitive strategies in lab studies. A second set of papers considered the use of stress-inoculation procedures in both clinical and lab studies of pain. Finally a potpourri of papers appeared that implicated the role of cognitive factors in the pain experience.

Dennis Turk (Yale Univ.) has written a comprehensive critical review of the cognitive control literature in pain studies (Turk, in press). Turk reviews a variety of cognitive, behavioral and decisional control techniques employed in pain regulation and indicates the questionable efficacy relative to non-specific treatments in the reduction of pain. Turk identifies a variety of parameters that may explain the equivocal nature of the results. One important conclusion is that as investigators we cannot assume that our pain clients or subjects suffer from a skills deficit or inadequate coping response. Thus, simply providing subjects with a specific coping strategy or type of information may not lead to greater pain tolerance. The role of self-efficacy expectations about coping skills that are already in the repertoire is considered. This is an important review paper and should give pause to those who conduct laboratory coping training studies. Moreover Turks' paper, as well as our own clinical experience, suggests that with clinical patients a good deal more attention needs to be focused on the initial conceptualization phase of stress-inoculation training rather on the actual skills training phase (Turk, Meichenbaum, Genest, in preparation). Also see the review paper by Weisenberg (1977), who argued that control of acute and chronic pain often involves dealing with the motivational aspects of pain perception rather than with the sensory components.

Myles Genest and *Turk* (in press) have compared the operant approach ala Fordyce, the transactional approach ala Sternbach and the CBM approach, in the group treatment of pain.

Etta Rybstein-Blinchik (N.Y. U. Medical Center) and *Roy Gresiak* have reported on the successful use of stress-inoculation with five chronic patients (3 arthritic, one paraplegic and one quadraplegic).

Ken Holroyd (Ohio Univ.) and his colleagues (Holroyd et al., 1977) have provided evidence for the efficacy for stress-coping training in the reduction of tension headaches in a clinical population. Interestingly, Holroyd et al. compared the CBM procedure with EMG biofeedback and found that the CBM procedure was more effective even at a 15-week followup. Moreover, reduction in EMG activity did not correspond with a reduction in headache activity. These results are consistent with the conclusions offered by Turk, Meichenbaum and Berman (1978) concerning the questionable effectiveness of biofeedback

in treating pain. A recent study by White, Holmes, and Benett (1977) also questioned the role of biofeedback, in this case, in the control of heart rate. These papers should give pause to proponents of biofeedback training.

Ken Holroyd and *Frank Andrasik* (Ohio Univ.) assessed effectiveness of CBM self-control procedures in the treatment of chronic tension headaches (Holroyd & Andrasik, 1978). Included in the study were a cognitive self-control group, a combined cognitive and relaxation self-control group, a headache discussion group who discussed the historical roots of symptoms rather than the development of specific coping skills, and a symptom-monitoring control group. All three treatment groups, except the self-monitoring group manifested significant improvement at posttreatment and at a six-week followup. These results are consistent with the findings of Holroyd et al. (1977). Moreover, the Holroyd and Andrasik treatment study which was conducted on a group basis was found to be as effective as individual CBM treatment. The Holroyd and Andrasik study also raises some question about the role of specific coping skills in the treatment package. Clients in the non-coping skills group reported spontaneously employing coping skills (e.g., prayer and images of Karate exercises). These reports underscore the need to view the client as a collaborator in generating coping skills. It is important to assess, prior to treatment, how clients have tried to deal with headaches in the past. It is quite reasonable to have clients employ cognitive and behavioral coping strategies of their own. In fact, that is one of the objectives of the stress-inoculation regimen. Holroyd and Andrasik discuss the importance of the role of general expectancy of change as contributing to change for the various treatment groups.

John Horan (Penn State) and his colleagues have conducted a component analysis of the stress-inoculation treatment of laboratory induced pain (Horan et al., 1978). In their lab study the coping skills element of the CBM training regimen was most effective. The educational component of the stress-inoculation procedure seems to be a necessary but not sufficient element of treatment.

Everett Worthington (Va. Commonwealth Univ.) has examined the components of a self-control approach to laboratory-induced pain (cold pressor task). The components include imagery content, choice of imagery content and self-verbalization. The results indicated that giving subjects choice and having them self-verbalize enchanced tolerance, whereas the specific content of imagery was not related to tolerance improvement. These findings are consistent with the stress-inoculation package, in which a multifaceted set of coping skills is developed from which the subject can then choose.

Jean Johnson (Wayne State) has examined the components of sensory versus procedural information with surgical patients (Johnson, 1977). Such studies that examine the relative importance of the different components of preparatory information on coping responses have important implications for preventative interventions. In a related study with cholecystectomy patients, Johnson et al. (1977) found that instructions in specific coping behaviors enhanced recovery and adjustment but did have similar effects with herriorrhapy patients. The description of typical sensations seemed to convey a sense of control for the cholecystectomy patients that permitted the use of coping strategies that already existed in their repertoire.

John Chaves and *Jude Brown* (S. Illinois Univ., Edwardsville) have examined the self-generated strategies in a dental situation (Chaves and Brown, 1978). Consistent with other research (e.g., Genest et al., 1977) it is easier to characterize the nature of ineffective coping strategies (mainly catastrophizing) than it is to identify the elements of coping strategies. The Chaves-Brown study bears replication in other settings. A structured interview was developed to assess and score the clients coping responses in the dental situation.

W. Nelson (Univ. Texas Science Centre) has reported an interesting case study of stress-inoculation with an 11-year-old dental phobic girl. Given the recent work by Barbara Melamed in having developed an observational scale for the dental office, it would be interesting to examine the efficacy of CBM procedures using such observational measures.

Dick Neufeld and *Pat Thomas* (Univ. W. Ontario) have noted the role of the cognitive appraisal of coping efficacy as a ming the enhanced self-control of pain stimulation. Neufeld and Thomas (1977) demonstrated that perceived efficacy at mastering a coping response significantly elevated subsequent pain tolerance.

DEPRESSION

The major CBM work in the area of depression has been conducted by Aaron Beck (Univ. Pa.) and his colleagues John Rush, Brian Shaw, Steve Hollon, and Gary Emery. A forthcoming book on *Cognitive Therapy with depressives* by Beck et al. (1979) should provide a much needed detailed therapy manual. A set of illustrative tapes as well as other cognitive therapy manuals are either available or being developed by Beck and his colleagues at the Center for Cognitive Therapy in Philadelphia. Indeed, the best clinical evidence for the efficacy of CBM comes from Beck et al.'s work with depressives. In an attempt to standardize and improve cognitive therapy Aaron Beck and Jeff Young have developed therapist competence rating scales and a training syllabus. In a collaborative study NIMH will be comparing cognitive therapy with depressive outpatients versus a brief interpersonal psychotherapy approach as developed by Myrna Weissman and her colleagues at Yale University.

Brian Shaw (Univ. W. Ontario) evaluated the therapeutic efficacy of Beck's cognitive treatment and Lewisohn's behavioural treatment of depression and a nondirective group and waiting list control group. The 32 *Ss* assigned to the four groups were referrals from a university student health service. The cognitive modification treatment was found to be more effective than the behavioral approach, as evident in self-report and objective clinical rating. The cognitive treatment focused on the depressed clients' negative conception of self, the external world and the future (Beck's cognitive triad). In Beck's (1970) view, the depressed client sees himself as deficient and inadequate, he consistently construes his experience in a negative way, and he believes his current difficulties will continue indefinitely. (The session-by-session outlines and treatment manuals are avaliable from Shaw.) The therapy was conducted on a group basis. Shaw's results contribute to the promising results for cognitive therapy with depressives.

Paul Blaney (Univ. Miami) has provided a most useful comparative review of the various theories of depression (Blaney, 1977). Although Blaney notes several distinctions, a comparison of the therapist manuals offered by Lewinsoln and Beck indicates that a substantive degree of overlap was evident in what they actually do in therapy. Thus one needs to distinguish between how authors theorize about their treatments (that is, the litany and catechism that accompanies each approach *vs.* what they actually do).

Langone and *Olkin* (1978) have put together a comprehensive annotated bibliography on the cognitive-behavioral approach to depression. Also see Feb. 1978 issue of *J. Abnormal Psych.* for a discussion of learned helplessness and depression.

John Teasdale (Univ. Oxford) and *Judy Bancroft* have examined the relationship between thought content (happy vs. unhappy thoughts) as a determiner of mood in depressed patients. Using EMG activity as a additional index of mood state they provide additional evidence for the relationship between thought and mood state.

Carolyn Fuchs and *Lynn Rehm* (Univ. Pittsburgh) have successfully employed a self-control-based intervention with depressed female volunteers. The treatment consisted of a six-week group program that sequentially focused on modifying self-monitoring, self-evaluation and self-control skills. Relative to a non-specific group therapy and a waiting list control group the self-control group demonstrated significant

improvement immediately following treatment and at a 6-week follow-up assessment. The self-control therapy manual is available from the National auxiliary publication service (see article for details). As noted above it would be interesting to conduct a content analysis of the various therapist manuals that have emerged for the treatment of depression (e.g., Beck et al,'s manual, Lewishon's manual, and the Fuchs-Rehm manual). Exactly how do the respective therapy procedures differ?

Several observations may be offered about the Fuchs-Rehm study. First, it is a fine study that should provide much stimulus to the field in evaluating the components of depression from a self-control perspective. In short, the study needs to be replicated with a more clinically depressed population, with more extensive followup assessment and, there have to be checks for credibility across treatment approaches (ala Kazdin & Wilcoxon, 1976). Finally one can raise questions about the adequacy of the self-control model as applied to depression. Surely clients (and therapists) can come to conceptualize the nature of their depression within a self-control framework, for such a framework will have heuristic value in facilitating change. The question still remains -- what are the types of studies that are needed to demonstrate that specific self-control deficits underlie or contribute to depression?

Since the Beck Depression Inventory has been employed in several CBM treatment studies with college students, the recent study by Bumberry, Oliver and McClure (1978) providing validation of the BDI with a university population is encouraging.

Finally, *Marika Kovacs* (Western Psychiatric Dist., Pittsburgh) and *Aaron Beck* raise the interesting question about the role of cognitive schemas as a contributor to depression (Kovacs & Beck, 1978). CBM investigators are now going beyond descriptive accounts of the content of our clients' maladaptive cognitions to a consideration of cognitive structures. This trend is evident in a number of recent papers by Arnkoff (in press), Goldfried (in press), Mahoney (in press), Meichenbaum and Butler (in press).

SELF-CONTROL PROBLEMS WITH ADULTS

A number of self-control problems, including alcoholism, obesity, nail biting, etc., have been studied by CBM researchers.

The CBM approach for the treatment of *alcoholism* is consistent with an increasing number of studies (Lang et al., 1975; Wilson & Abrams, 1977; Wilson & Lawson, 1976) that have shown that an individual's expectancy about the alcoholic content of his/her drink, regardless of its pharmacological properties, is a crucial determinant of behavior. Interestingly, in contrast to Wilson and Lawson (1976), the expectancy manipulation has much less impact when female subjects were used (Wilson and Lawson, 1978). Wilson and Lawson (1978) speculate about the role of sex differences.

Bliddell et al. (1978) have also demonstrated the importance of cognitive set in mediating the arousal effects of alcohol. Once again it was found that the expectation that one is drinking alcohol had more effect than the presence of alcohol *per se*. However, in a recent study Miller et al. 1978 found that expectation had no effect on storage and retrieval processes as assessed by a free recall task while the ingestion of alcohol had a substantial impact on performance. Thus a distinction must be noted as to where expectancy manipulations do (social behavior) and do not (memory) have task effects.

Alan Marlatt and *Judith Gordon* (Univ. Washington) have reported on 137 relapse episodes taken from groups of alcoholics, smokers and heroin addicts. They found that 76% of the relapses occurred in the three following categories: coping with intrapersonal negative emotional states, coping with interpersonal conflict, and coping with social pressure. Marlatt and Gordon (1979) provide a cognitive behavioral model of the relapse process and consider the CBM treatment implications.

Rychtarik and *Wollersheim* (1978) have considered the role of cognitive factors in the consumption and behavioral effects of alcohol. They discuss the role of such variables as (1) the subject's causal attributions regarding the drinking problem; (2) the reliability of arousal that may have previously been identified as craving; (3) developing cognitive and behavioral coping strategies for potential drinking situations and (4) determining appropriate treatment goals (i.e., abstinence vs. controlled drinking).

Charles Reeder (George Washington Univ.) and *Joseph Kunce* have demonstrated the potential value of a videotape coping modeling techniques induction technique focused on teaching drug abstinent behaviors to 22 heroin addicts. A variety of scenarios were developed covering such areas as accepting help from others, capitalizing on social skills, job interviewing, employer relations, free time managment and new life style adjustment. In each of these scenarios, the model exhibited a coping attitude while performing and developing the various tasks required. The model was initially shown as being pessimistic and ineffective and then the model would reflect upon his problem and discuss it with a peer or staff member. As the scenario progressed the model displayed trying out the new problem-solving behavior and becoming less dependent. The videotape models were ex-addict and advanced residents of the residential treatment center. The videotape model procedure was compared with a videotape model which consisted of lectures developed from the content presented in the videotapes. Following the exposure to the videotape models, group discussion which was led by ex-addict paraprofessional staff focused on the presented problem areas. The group members were asked to project themselves into the situations and to discuss what they would do in the same situation. The relative efficacy of the treatment was assessed in terms of the vocational records following termination from the program (30, 90, and 180 days). Although the authors had difficulty in quantifying the data, the videomodeling treatment was found to be more effective than the videolecture. These results are consistent with other studies by Kunce and his colleagues as to the value of videomodeling with academic achievement of disadvantaged adults (Kunce et al. 1974) and interpersonal skills by psychiatric aide trainees (Cook et al. 1974).

The reason I have spent so much space on the Reeder-Kunce study is that it offers a promising, but unfufilled approach to a difficult population. Let me underscore the pilot study element in the Reeder-Kunce title and the need to replicate and extend this work.

Ed Chaney, *Michael O'Leary* (VA Hospital Seattle) and *Alan Marlatt* have reported on a skill training program for alcoholics. The training program was based on the D'Zurilla and Goldfried (1971) problem-solving approach and involved instruction, modeling, behavioral rehearsal and coaching, both of actual response behavior and of the cognitive processes for generating the response. Subjects were taught how to define the problem (e.g., temptation, loneliness, etc.), generate alternatives, and think about short- and long-term consequences. A behavioral rehearsal phase provided practice in carrying out the adaptive response. This is a most encouraging study that bears replication.

James Intagliata (Community Psychiatry, Buffalo) successfully employed an interpersonal problem-solving training procedure with an alcoholic population (Intagliata, 1978). Ten one-hour training sessions (2-3 per week) were used to teach problem-solving skills. Intaghata found that the means-ends problem-solving test (MEPS) was a sensitive indicator of change and that the subjects made practical use of the problem solving principles in controlling drinking behavior, at least as evident at a one-month followup. Obviously, a longer followup is needed. Intagliata points out the potential value of combining the cognitive problem-solving approach with a more behaviorally oriented social skills approach ala the work of Michael Argyle and his colleagues.

> *There is no fool so foolish but is an expert on obesity.* Williams, 1976 (as cited by Mahoney et al., 1977).

Kathryn Mahoney and her colleagues (Penn State) have reported on a multifaceted CBM treatment for obesity (Mahoney et al. 1971). The treatment package includes cognitive restructuring, environmental engineering, eating style and activity counseling (see Mahoney and Mahoney, 1976). A cognitive factors questionnaire correalted with fat loss. They also cite the work of Kelley Brownell and her colleagues on the importance of couple training in the maintenance of weight change.

Francis Stern (Ksan College) and her colleagues have offered a cognitive approach toward weight control (Stern et al., 1976). Given the multifaceted nature of the obesity problem (see Rodin, 1977) any CBM approach, including Stern's et al., Mahoney and Mahoney's (1976) and Nash-Jackson and Ornston (1977) bears critical evaluation.

Dunkel and *Glaros* (1978) have reported that increased efficacy accrues by adding a self-instructional training to stimulus control procedures in the treatment of obesity. Obese subjects were taught to covertly 'talk' to themselves in ways that would enable them to cope with hunger and the frustration of their desire to eat as well as involving exercise activities. Given the difficulty in maintaining weight loss, this preliminary study also bears replication.

Peter Herman, Janet Polivy and their colleagues (Univ. of Toronto) have highlighted the observation that behavioral and physiological differences between obese and normal weight individuals might reflect the fact that the majority of obese individuals are chronic dieters, whereas such is not the case with normal weight persons. In their 1977 article, Herman et al. offer a restraint scale that bears consideration. These studies raise the question of whether obese subjects who are high in restraint are differentially responsive and preoccupied with food-related cues as compared to non-obese low-restraint subjects. Another possibility that may be worth considering is that the various groups (obese-normal weight, high and low restraint) may be differentially responsive to activity related cues. Do subjects differ in their sensitivity, avoidance, preoccupation and participation with activity? What would the restraint scale look like if it also considered activity-related items? Would the inclusion of such items increase prediction?

Now let us shift from eating to smoking.

Blittner et al. (1978) have shown that one can enhance the efficacy of self-control treatment programs with smokers by influencing the preparatory set or self-expectancy.

Miller (1978) examined the role of cognitive restructuring and regular paced smoking in smoking cessation. Once again the absence of maintenance effects was evident. The cognitive restructing approach in the Miller study followed a rational-emotive basis. Perhaps a CBM problem-solving approach similar to Chaney et al. (1978) may prove more effective in dealing with self-control problems such as smoking. An interesting finding in the Miller study are the changes in subject's beliefs about their ability to control smoking and its relationship to behavior change.

Harris and McReynolds (1977) have examined the use of self-instructional training with regard to *finger nail biting.* Their study indicates that the simple prohibition 'Don't bite your nails' adds little to self-monitoring, especially in dealing with such an automatic response as nail biting.

Another useful update is the study by *Michael Perri* and *Steve Richards* (Univ. Missouri) who have investigated naturally occurring episodes of self-control behavior. One finding worth noting is that the methods used by successful self-controllers seems to vary according to the problem with which they were dealing. (See CBM newsletter 3 page 18 for a description of this study.) As mentioned previously it would be interesting to apply the Perri-Richards interview format to clinical populations.

POTPOURRI OF CLINICAL PROBLEMS AND TECHNIQUES

The role of cognitive variables has been identified in a number of clinical problems. This potpourri section indicates the potential role of CBM intervention with a variety of problems and techniques.

Tom Borkovec (Penn State) has nicely summarized the research on *insomnia*, indicating the role of cognitive intrusions and the role of relaxation procedures. His review provides much grist for CBM researchers in raising the possibility of how CBM procedures could be added to relaxation interventions. One of the more provocative suggestions is that pseudo-insomniacs (or what Borkovec more correctly labels experiential) and idiopathic insomniacs (objective insomniacs) may differ in their thinking styles and contents. The pseudo-insomniac reports difficulty in falling asleep and general sleeplessness, but this is inconsistent with EEG sleep records. The variety of assessment techniques designed to assess the flow of ideation may prove valuable both diagnostically and therapeutically in studying these group differences. *Tom Coates* (Stanford Univ.) has begun to assess the thought processes of insomniacs prior to following asleep. The use of the EEG data (ala Borkovec) provides a very nice index of the success of various interventions. A related notion is whether attempts at alter 'day time' thinking patterns would effect insomnia behavior.

Rook and *Hammen* (1977) examined the role of cognitive factors in *sexual arousal.* Such cognitive events as the labeling of physiological arousal, monitoring of sexual arousal cues, variety and consequences of self-observations and the effects of expectations are considered. The implications of their review for CBM intervention for sexual dysfunction are many.

Ray Novaco (Univ. Calif., Irvine) has written several recent integrative chapters on a CBM approach to *anger management.* Perhaps the best is Novaco (1979). Also see Novaco's stress-inoculation therapist manual published in Foreyt and Rathgen (1978). Fraczek (1977) has discussed the relationship between cognition and emotion in the regulation of aggressive behavior.

James Averill (Univ. of Mass.) has noted the similarity between modern day CBM procedures to treat anger (Novaco, 1975) and the suggestions offered by the Stoic philosopher Seneca (40-50 A.D.). Seneca's view that 'anything that can be done in anger can be done better with reason and deliberation' is consistent with current CBM procedures. See Averill (1977) for a complete description of Seneca's position as well as for a description of a questionnaire to assess an individual's anger.

The reference to Seneca's work should remind us that our current enthusiasm for certain CBM techniques should be tempered by a respect for our forebears who offered many of the same techniques (see Kaufman 1976; Sobel, in press), or as Blatt (1975) has noted:

> 'History is the basic science. From history flows more than knowledge, more than prescription, more than how it was - how we might try to make it become' (p. 402).

The CBM literature has witnessed a good deal of increasing interest in the potential *role of imagery as a therapeutic device.* This is evident in several places – the publication of a *Journal of Mental Imagery*, a conference on imagery, and several books on the topic, such as Singer and Pope (1978). An important caveat must, however, be offered about the enthusiasm concerning such imagery procedures. The caveat entails the limited value of using a picture metaphor to conceptualize the function of images. Instead the importance of the propositional nature or meaning system in which a client's

image is embedded must be considered as playing a central role in mediating change (see Anderson, 1978; Pylyshyn, 1973; Lang, 1977; Meichenbaum, 1978). One must view the various imagery techniques that have been offered within a larger framework of the behavior change process.

Another caveat concerning imagery was offered by Kazdin (1976). He noted the need to assess subjects' imagery during covert modeling procedures by having subjects verbalize aloud. He reported that subjects generally adhere to conditions to which they were assigned, but some subjects introduced some material that deviated from that presented by the therapist.

An innovative way to employ inner experience (fantasy and dyadreams) has been offered by *Morgan* and *Skovholt* (Univ. Florida). In their 1977 article they describe how daydreams and fantasy can be used in *career counseling*. They employ both spontaneous fantasy by means of an interview and guided fantasy, which entails inducing relaxation, the fantasy itself, and processing of the fantasy. A script of the guided fantasy is included in the article. Morgan and Skovholt's use of fantasy is consistent with the view that such fantasy and daydreams may be both positive and life enhancing.

Consistent with the 'work of worrying' concept of thinking through various alternative, Wilkins (1976) has offered an imagery-based decision procedure whereby the client is asked to imagine various decisions that he may have obsessed about and to consider the consequences attached to respective decisions. The client is to note the accompanying feelings associated with each decision. The imagery technique is designed to influence the content and style of the client's thinking process. The therapy then moves into a consideration of the meaning of those consequences as well as the overt behavior required to implement change.

Len Horowitz (Stanford Univ.), in a thoughtful study, has examined the cognitive structure of interpersonal problems treated in psychotherapy (Horowitz, in press). By content analyses and then cluster analysis and multidimensional scaling of presenting problems, Horowitz has been able to identify the nature of the 'I can't' and 'I have to' problems that neurotic and character disorder psychiatric outpatients present. Horowitz identifies five clusters of problems, including intimacy, aggression, compliance, independence and sociability. This study bears replication. It would be interesting to note how the nature of the presenting problems change over the course of therapy. Elsewhere, I have proposed that one means by which psychotherapy operates is to translate the nature of the presenting problem (Meichenbaum, 1977). Thus, a couple who appear with one problem (for example, the husband may have some symptomatic behavior that he eats too much, is an obsessive worker, etc.) and over the course of therapy they have this problem translated into a different problem (e.g., the couple now have a communication problem, or problem with intimacy). Horowitz's techniques now permit the assessment of such changes over the course of therapy.

Elaine Blechman (Wesleyon Univ.) has written several papers on the use of a problem-solving approach with single-parent families, and with her colleagues has developed a family contract game that can be used as an adjunct for CBM training.

Art Robin (Univ. Md.) has developed a parent-adolescent problem-solving communication training program. In a recent article, Sanders (1978) discusses a variety of ways in which a problem solving format could be used in psychotherapy. A closely related CBM treatment approach is cognitive modeling.

Cognitive modeling approaches (Meichenbaum, 1971; Sarason, 1973, 1975) deliberately emphasize a model's verbalizations of the problem-solving steps, coping attitudes, and other self-instructions in order to help the observer learn the 'how to' elements in generating strategies and response alternatives, and not just 'what is' an appropriate response. In a brief but pointed article, Bruch (1978) has summarized the data for the efficacy of cognitive modeling. Bruch summarizes the data that indicates that when the model's verbalization of cognitive processes accompanies behavioral examples it is more effective than just exemplar modeling alone.

Since therapeutic videotape and film modeling represent useful tools for CBM therapist, a recent review by Thelen et al. (in press) provides a needed critique. A complementary review has been offered by Hung and Rosenthal (1978) on the use of therapeutic videotaped playback.

Dan Kirschenbaum (Cinncinati Health Dept.) has investigated the relationship between sports psychology and CBM, using golf as the target behavior. Duffers take note! . Kirchenbaum and Ron Bale (1977) reports on a content analysis of the advice offered by golf pros. The pros suggested a variety of self-regulatory strategies, including standard setting, planning, covert modeling and environmental imagery. Kirchenbaum and Bale are developing a CBM treatment on the basis of their analyses.

O'Hara (1978) has compared cognitive coping skills training, attentional training, EMG biofeedback and a motivation placebo control in enhancing laboratory motor skills performance. The biofeedback training was ineffective, whereas the relative efficacy of the attentional and coping skills training interacted with personality factors and degree of competence.

Since the last newsletter, the cognitive restructuring technique of rational-emotive therapy (RET) was critically evaluated. Several claims as well as reviews were offered (e.g., DiGuiseppe et al. 1977; Kessel and Streim, 1976; Mahoney and Arnkoff, in press). In fact, an entire issue of the *Counseling Psychologist* was devoted to RET (1977, 7, No. 1). Although the empirical basis of RET and the role of examining the clients 'irrationality' has continued to be criticized (Mahoney, in press, Lazarus, 1978, Meichenbaum, 1977), variations on the RET approach continue to appear (e.g., Reardon and Tosi, 1977). Perhaps a most telling caveat directed at the RET approach (at least as conducted by Albert Ellis), was offered by Heubush and Horan (1978) who caution a therapist to mind thy language. *Heubush* and *Horan* (1977) examined the impact of counselors using four non-standard English words (fuck, shit, hell and damn) in the sessions (e.g., 'Some clients take longer to get their shit together.') On both client self-report and behavioral measures the counselors who used nonstandard English were judged to be less effective and satisfying. The authors recognize that their study does not consider the ultimate criterion which is to effect long term behavioral changes. The results, however, should give pause for us to 'clean-up' our act!

AGED

An interesting extension of CBM procedures has been in the area of the aged.

Nancy Treat (Penn State, Fayette), *Leonard Poon* (VA Hospital, Boston) and their colleagues held a most interesting APA symposium on intervention problems for memory problems with the aged. Treat et al. (1977) argue that memory training for the aged should be directed toward teaching efficient coding and organization during acquisition, and reconstruction skills during retrieval. Similar conclusions were offered by Meichenbaum (1974). Treat et al. offer a number of specific cognitive and behavioral suggestions that can be included in a training regimen. A metacognitive analysis of the elderly's knowledge concerning such mnemonic skills would prove most helpful (see Perlmutter, 1977 for an example of such a study). Treat et al. highlight the need to consider the educational history of the elderly in devising training programs. Pedagogical techniques that allow the individual more control over the conditions of learning ('discovery learning') seem to help elderly learners more than younger ones. Treat et al.'s paper is quite thoughtful in providing a useful framework for a CBM treatment intervention. (Also see the paper by Labouvre-Vief, 1977.)

BRAIN DAMAGED PATIENTS

Another instance in which the teaching of cognitive strategies has proved helpful has been with brain damaged patients. Glasgow et al. (1977) reported two case studies in which mnemonic techniques (cognitive strategies) were successfully used to remediate memory problems with brain damaged patients. They used Robinson's PQRST approach that teaches organizational-rehearsal skills (Preview, Question, Read, State and Test). CBM procedures of cognitive modeling, overt and covert rehearsal, as well as metacognitive training, may enhance the training program employed by Glasgow et al. It would be interesting to try CBM training on other tasks (such as hypothesis testing) with specific neuropsychological disorders. (See Rausch 1977 for one such analysis with temporal lobe patients.)

Lewishohn, Danaher and *Kikel* (1977) have employed visual imagery as a mnemonic aid for a variety of brain injured persons. The memory tasks involved paired associate learning and a face-name task. Lewishon et al.'s results are consistent with the notion that one can use cognitive strategies (imagery, plans, self-statements), as prosthetic devices to compensate for age-related or injury related disorders (see Meichenbaum, 1974). It would be interesting to determine if brain-injured patients have the ability or can be taught to (1) identify situations in which their performance is inadequate and (2) employ responses from a repertoire of cognitive and behavioral skills strategems. In short, can the Lewisohn et al. and Meichenbaum approaches be translated into meaningful modes of treatment intervention for brain injured patients. Note Kanfer and Phillips's observation (1970, p. 389) concerning how brain-injured patients benefited from self-instructional training. Such clinical observations need to be translated into experimental studies. Lewisohn et al. discuss several limitations of the imagery training and cite several other reports on the topic. At this point let me underscore one observation Lewisohn et al. make with regard to remediation of brain injured patients, namely 'relatively minor attention has been afforded to the systematic application of psychological knowledge to the remediation of cognitive and perceptual deficits.' (p. 723). The armamentarium of CBM may prove valuable in the remedy of such deficits. Any treatment regimen should consider the role of the client's negative self-statements and intense affective responses during the acquisition phase and the potential value of employing coping models.

SCHIZOPHRENICS

Perhaps the most equivocal data (I almost said schizophrenic data) for the efficacy of CBM with any population comes from the work with schizophrenics. In previous newsletters I have summarized the treatment research on self-instructional training and problem-solving approaches with schizophrenics. Two recent projects hold some promise. These are by Charles Wallace and his colleagues and by Erich Coche and his colleagues.

Charles Wallace, Robert Liberman and *David Lukoff* (Camarillo State Hospital) and their colleagues are testing a three-month cognitive training program to supplement a social skills training program with schizophrenics. The training program involves asking a patient to roleplay interpersonal problems, videotaping and asking him a series of problem-solving questions concerning his performance. This is followed by videotape feedback and self-evaluation of certain behavioral (verbal and nonverbal) aspects. Coaching and modeling are then employed to further fine-tune performance. A large number of modeling scenes has been developed covering a variety of situations, including the hospital, family, community agencies, peer and dating situations. In addition, a cognitive training program (group meetings) teaching cognitive skills ala Meichenbaum's coping skills, Spivack, Platt and Siegel's interpersonal problem-solving and some RET work are included. To facilitate this training, videotaped coping models are used. This involves stopping the tape at various points, soliciting from the client likely cognitions and possible coping responses. The subject is then given a chance to roleplay in the same situation. The Camarillo program sounds sensible and comprehensive. We await the outcome data. Moreover, such a program seems most needed to stop the 'revolving door' aspects of schizophrenia. Schizophrenics in remission seem well suited for such CBM approaches.

Coche and *Douglas* (1977) successfully used problem solving training to treat inpatients at a small psychiatric hospital. The problem solving format was more effective than a play-reading group and an assessment control group as evidenced on several self-report measures (Minimult and Adjective checklist), but no differences were evident on a Means-ends problem-solving questionnaire. Indeed, the play-reading group evidenced a significant reduction in depression and general psychopathology. Most importantly, Coche and Douglas highlight the clinical skills required to implement CBM problem-solving training.

Finally, *P. Priddle-Higson* (North Wales Hospital) conducted a case study with a 54-year-old chronic schizophrenic woman. The self-instructional training procedure was effective in reducing the client's frequent repetition of people's names.

CONDITIONING MODELS RECONSIDERED

> It now seems apparent that classical conditioning in normal adults, as ordinarily studied in the laboratory, is a consequence of thinking rather than vice versa. Maltzman (1977, p. 112)

> The GSR-OR (orienting reflex) is generated by the participants' covert problem-solving activities. It is not a response elicited by the CS signal as the result of the establishment of an association; it is a consequence of the discovered significance of the CS as a signal for the UCS. (Maltzman (1977, p. 113)

These observations offered by Maltzman derive from a series of studies that were reported in the June 1977 issue of the *Journal of Experimental Psychology (General)*. The series of studies highlights the role that cognitive processes play in classical conditioning paradigms. Maltzman's studies indicate that the 'conditioning' of GSR to words is a problem-solving discovery process. Maltzman's conclusions are similar to those offered by Brewer (1974) who questioned whether there is evidence for classical and operant conditioning with adult humans. These speculations have important implications concerning how we should interpret other conditioning studies. For example, consider the studies by Ohman et al. (1976), who on the basis of classical conditioning of electrodermal responses to potentially phobic stimuli in human adults concludes that phobias may be instances of 'biologically prepared learning.' How do the active problem-solving processes referred to by Maltzman and Brewer apply in the Ohman et al. studies? A more detailed description is needed concerning what the subjects in the Ohman study were told, what their expectations were, what was the nature of their cognitive processes during the conditioning trials. Perhaps the consideration of such questions will influence the way conditioning studies are conducted and reported. Perhaps journal editors (and readers) will become as concerned about the role of the subject's cognitive events as they are about the intensity, duration and interstimulus intervals of the UCS and CS. Maltzman (1977, p. 118) cites several studies that support his own findings that little, if any, classical conditioning of the GSR is obtained in unaware subjects. The subject's ability to verbalize the CS-UCS contingency appears to be a critical element in learning. Consistent with the

conclusions offered by Maltzmann concerning the role of cognitions in the acquisiton of conditioned responses is the report by *Jennings* et al., (1978) that 'the elimination of classically conditioned pupilary responses is primarily, if not wholly, controlled by cognitive processes' (p. 201). By including groups that received cognition-inducing conditions (instructions about the UCS), one-trial extinction was obtained, thus questioning the non-cognitive exploration of autonomic conditioning. Both the Jennings et al. and Maltzmann conclusions are consistent with those drawn by Brewer (1974) and Bower (1978). (Also see Hulse et al., 1978, and Ross and Ross, 1976.)

Such questioning of the role of cognitive factors in the learning process has not been limited to learning studies, but has been extended to behavior therapy procedures as well. Some of the techniques that have been questioned include desensitization, thought stopping and operant procedures.

For example, a study that questions the conditioning explanation of the efficacy of systematic desensitization was offered by *Kirsch* and *Henry* (1977). They compared desensitization with a non-extinction control procedure and a placebo treatment equal to desensitization in credibility. The target problem was speech anxiety in college students. The results indicated the role of credibility of treatments in contributing to change, underscoring the arguments offered by Kazdin and Wilcoxin (1976). Also see the recent review by Walsh (1978).

Another study that questions the reciprocal inhibition model of desensitization was offered by Goldfried and Golfried (1977), who found that the inclusion of hierarchy items that were totally irrelevant to the target behavior (speech anxiety) was as effective as a target behavior relevant hierarchy. Both the hierarchy relevant and irrelevant groups were run within a self-control framework, further underscoring the value of a coping skills orientation.

The thought stopping procedure was also questioned by several authors. Teasdale and Rezin (1978) questioned the usefulness of thought-stopping in the treatment of depressives. Their results are consistent with Stern, Lipsedge and Marks (1973), who reported that stopping obsesive thoughts produced no better results than stopping neutral thoughts, either in terms of clinical outcome or in terms of clinically reported thought frequency. Matthews and Shaw (1977) offer a similar conclusion with regard to the *ineffectiveness* of thought-stopping of anxious patients. Perhaps the problem with thought-stopping was best captured by one of Teasdale and Rezin's patients, who reported that although thought-stopping could prevent certain thoughts appearing in the 'front of her mind', she was dimly aware of them accumulating in the 'back of her mind' waiting to be processed as soon as the thought-stopping was relaxed (p. 101). These results indicated that it is necessary to attend to more than the mere content of the client's thoughts but also to their meaning (i.e., psychological significance).

Condry's (1977) recent review of the difficulties with operant approaches further underscores the role of cognitive factors. Condry concludes that task-extrinsic rewards, when they are used to motivate activity, particularly learning, have widespread undesirable effects.

John Steffen (Univ. Cincinnati) and his colleagues have also questioned the adequacy of an operant model to explain covert reinforcement (see Steffen 1977; Lurie & Steffen 1977). Similar conclusions were offered by Zemore et al. (1977) with regard to covert negative reinforcement.

In short, a careful scrutiny of the 'conditioning model' has implicated the role of cognitive factors in the learning process. Or, as John Dewey (1927) stated some time ago, 'Thinking is secreted in the interstices of habits' (p. 160). It is these interstices that bear our attention.

Dene Berman (Denison Univ.) has examined cognitive-behaviorism from a dialectic viewpoint (Berman, in press). Berman traces the oppositional tendencies of introspectionism and behaviorism and notes the integrative value of a cognitive-behavioral approach.

ASSESSMENT OF COGNITIONS

A major issue in the CBM field is the need to develop assessment procedures designed to tap the role cognitions place in maladaptive behavior and how cognitions as well as affect and behavior change as a result of CBM intervention. In short, what are the mechanisms involved in the change process? In the last 17 months some beginnings were offered. Before summarizing the various assessment studies, an important controversy concerning cognitive assesament must be noted.

Nisbett and Wilson (1977) have argued that people have little awareness of the nature or even the existence of the cognitive processes that mediate judgments, inferences and the production of complex social behavior. Nisbett and Wilson question the basis of such cognitive assessment. The issues surrounding this paper would require more space than this newsletter allows and the interested reader should see reactions to Nisbett and Wilson's article by Ericcson and Simon (1977), Smith and Miller (1978) and Meichenbaum and Butler (in press). To briefly illustrate the concern consider an experiment in which a social psychologist wishes to study a juror's behavior and he manipulates the attractiveness of the witnesses for the defence and not for the prosecution and then examines the effect on the *S*'s behavior. When *S*s are asked about the reasons why they voted 'innocent' (i.e., in the direction of the attractive witness) they do not offer the attractiveness of the witness as an explanation (or hint at the independent manipulation that interests the social psychologist). Nisbett and Wilson present many variations on this theme and in turn question the value of *S*'s report. The question is what should we conclude from such studies and what are the implications for cognitive assessment? To be brief – one can question the adequacy of the assessment of the *S*'s report in the studies reported by Nisbett and Wilson and wonder if the assessment procedures to be described would yield the same conclusions. Secondly even if the *S*s' report did *not* match the explanation held by the social psychologist (i.e., attractiveness), the *S*'s explanation or inference may prove a useful explanation and predictor of future behavior. In short, although one must be cautious in tapping *S*s' reports of their cognitions, the conclusion that such reports are of little value or non-veridical is premature. The Nisbett-Wilson argument should not detract us from actively developing assessment procedures. (See section below on cognitive psychology for further examples of the implications of the inference process.)

Elsewhere (Meichenbaum and Butler, in press), we have summarized these cognitive assessment procedures under the rubric of *cognitive ethology*. Several other recent papers and books designed to measure the flow of ideation have appeared, viz., Cacioppo and Petty (1978), Kendall and Korgeski (in press), and Pope and Singer (1978). These works indicate that a number of assessment procedures are available to the CBM investigator. These procedures include: think aloud, videotape reconstruction, spontaneous private speech, post-performance questionnaire, task related projectives, thought sampling, thought listing, and others. Two CBM edited assessment books are now in progress by Kendall and Hollon, and by Merluzzi, Glass and Genest.

One other issue bears comment and that centers on what is the appropriate level of analysis of cognitions. One can assess specific self-statements (automatic thoughts and images) or accompanying belief systems or one could focus on style of thinking, etc. Thus far there has been little or no attempt to interrelate these various levels, nor look at several different assessment procedures with the same procedure. For example, consider studying, by means of both a within and between groups design, a target population such as high and low speech anxious *S*s and assessing their cognitions by means of belief scales, think aloud, thought-listing, post performance questionnaire,

and projective task related stimuli. Does a common pattern emerge across modes and type of assessments? Now let us consider some illustrative assessment studies.

As indicated, a central issue in the CBM assessment of coping skills involves the appropriate level of analysis. While several of the papers described have focused on the specific content of the client's self-statements, recent study by *Abigail Stewart* (Boston Univ.) (1978), raises an interesting question about the need to assess at the level of world view or general belief level. Stewart examined longitudinally the coping styles of 'self-defining' vs 'socially-defined' women as indicated by problem-solving style to TAT type stimuli. It would prove interesting to compare subjects who differ in general beliefs in terms of the content of their internal dialogue in specific stress situations. Research is needed that bridges the various levels of analysis.

Jeff Lohr, JoeAnn Brant and *Dennis Bonge* (Univ. Arkansas) have presented a preliminary report (1977) on a situational irrational cognitions inventory.

Clayton Shorkey (Univ. Texas, Austin) and his colleagues have developed a Rational Behavior Inventory that includes 37 items scored on a five-point Likert scale. Bessai (1976) has performed a factorial assessment of irrational beliefs, while Bucholz (1976) has indicated the important role of method variance in assessing beliefs. For example, different results are obtained if subjects are asked to endorse descriptive paragraphs versus respond to individual belief statements. The issue of method variance has not been examined by those studying so-called irrational beliefs.

Karen Sutton-Simon (Oberlin) has critically examined the psychometric properties of the various scales designed to assess irrationality. Her critique should give pause to anyone using these scales. Moreover the role of so-called irrationality as a correlate of or contributor to psychological maladjustment has been questioned by several people (R. Lazarus 1978; Mahoney, in press; Meichenbaum, 1977).

Peterson et al. (in press) have performed a most interesting *think aloud* study with teachers. They found a relationship between the planfulness evident in think aloud samples and teacher behavior and student achievement. This is a most important study in providing a framework for relating thinking style to performance.

A potentially interesting approach to the assessment of cognitive components of anxiety was offered in an article by *Morelli* and *Friedman* (1978). They used the Endler and Hunt S-R inventory format to assess cognitive correlates of trait anxiety. The attempt to examine the role of irrational beliefs cross-situationally is welcome.

Perhaps the development of scales to assess specific post-performance self-statements will alleviate some of the problems that have arisen concerning general anxiety scales in the past. For example, the work by *Nicholls* (1976) on the test anxiety scale for children has questioned whether the TASC might be better interpreted in terms of self-evaluation than anxiety effects. Nicholls' article provides the needed reminder not to assume uncritically that a scale is measuring what its name denotes.

Paul Heppner and *Chris Peterson* (Univ. Nebraska, Lincoln) have developed a problem-solving inventory designed to assess the elements of problem-solving. Their results suggest that individuals can be assessed in terms of the systematic approach problem-solving behaviors, impulsive problem-solving behavior, and the confidence in one's ability to solve problems. The Heppner and Peterson paper was part of a AERA symposium (1978) on the assessment and training of problem solving skills. Other contributors, all of whom are at the Univ. of Nebraska-Lincoln, were David Dixon (Problem-solving training and counseling), Chris Peterson (Training generalizable problem-solving skills in a workshop setting), and Royce Ronning (Problem-solving training and instruction). A review of the problem solving literature has been offered by Heppner (1978). Is important to recognize that an individual may have a variety of problem-solving skills in his repertoire, yet not call upon these skills in some area. How many therapists do you know who do marital counseling in a problem-solving way fail to employ these skills in their own relationships? Moreover, that problem solving skills may play a part in fostering self-control behavior was reported by Perri et al. (1977) who examined, by means of a structured interview, individuals who successfully reduced smoking on their own. Successful reducers used more techniques over a longer period of time, and they endorsed self-reinforcement and problem-solving procedures more frequently than did unsuccessful reducers.

Russell Hurlburt (Univ. Nevada) has explored the usefulness of *thought sampling* using a random sampling technique that involves the subject's carrying a pocket-size beeper (an electronic random interval generator). The subjects are asked to record their thoughts and the situational contexts and activities when the beeper goes off. These thoughts were then scored in terms of various rating scales.

Closely related to the issue of cognitive assessment is the *relationship between cognition and emotion*. Whether we consider the work of Beck on depression or Ellis's model of emotion, the causative nature between cognition (thinking styles, irrational beliefs, self-statments) and affective experience is far from clear. An interesting developmental approach to this problem was offered by *Susan Harter* (Univ. of Denver) in a 1977 paper in which she related Piaget-Werner developmental theory to children's affective experience. Harter uses a case study to illustrate the relationship between children's cognitive incompetence and the difficulty of understanding and expressing polarized feelings. As I read Harter's description of the nature of the child's thinking style with regard to affect, I was struck by its similarity with the description offered by Beck of the thinking style of depressives. The depressives disposition to experience errors of thinking that are characterized by arbitrary inference, overgeneralization, etc., seems to parallel Harter's description of the child's inadequate conceptualization of affect. Do children who have been identified as deviant on the basis of classroom observations or the peer nomination procedures differ in their conceptualization of emotions? Can one begin to hook up the clinical observation (and techniques) of Harter and the behavioral and cognitive data?

Another common theme evident in the CBM literature is that experimentally induced self-verbalizations have definite emotionally arousing effects. The lab studies reviewed in previous newsletters (e.g., Velten, Strickland, Russell and Bradsma, etc.) that have employed self-statement manipulations to effect arousal states have been critically evaluated in terms of methodology by Rogers and Craighead (1977). A major conceptual shortcoming with such studies is the failure to consider the meaning system surrounding particular self-statements or the need to distinguish between surface structure and deep structural factors. It is not the content of the particular self-statements *per se*, but rather the cognitive structure that gives rise to particular self-statements that bears consideration (ala the work of Bandler and Grinder, Watzlawick et al.)

Finally, related to the issue of cognition and emotion is a recent study by Erdman and Janke (1978). They have replicated Schacter and Singer's (1962), study suggesting that Schacter's theory applies to emotional states of anger and happiness, but not anxiety. This study counters some of the earlier criticisms directed at the Schacter and Singer study. In order to further study the Schacter and Singer's notions it would be interesting to secure more process measures of the flow of subjects' ideation when exposed to a confederate who role plays a particular affective state. Could one replicate the Erdman and Janke study using the cognitive assessment measures described above?

COGNITIVE PSYCHOLOGY AND CBM

One objective of the present newsletter is to bridge the

gap between 'academics' who are studying cognitive processes and clinicians who are similarly concerned with the role of cognitions in psychopathology and psychotherapy. Several linkages have already been suggested, but this section will further highlight these possible connections.

Given the heavy emphasis placed on cognitive factors in social situations by CBM researchers and practitioners, one might draw the wrong impression. A good deal of behavior is indeed, 'mindless' to use Langer's (1978) term, or 'scripted' to use Abelsen's (1978) term. Script is used to describe people's knowledge of routine activities (e.g., eating in a restaurant, visiting a dentist). Bower et al. (1978) have used the concept of scripts to assess how subject's knowledge is organized and used to understand and remember narrative texts. The bridge to CBM may come if we ask clinical populations vs. matched controls to provide scripts for particular situations. For example, imagine asking high versus low test anxious subjects to report on their scripts (sequence of feelings, thoughts and behaviors) in a test situation; or subjects who differ on assertiveness to describe their scripts in social situations. Could one use the procedures developed by Bower et al. to study client's scripts in criterion situations?

Harris and *Monaco*, 1977, (Kansas State) in an important article have discussed the psychology of pragmatic implication. Pragmatic implications occur when utterances of the speaker strongly suggest (rather than directly assert or logically imply) another piece of information and thus may lead the hearer to make a pragmatic inference. In short, Harris and Monaco are describing the nature of the cognitive processes of inference and attributed meaning or the processes by which we take something as evidence. Their discussion is wide-ranging, covering such topics as reading comprehension, diagnosis, jury trials, advertising and so on. The notion of 'pragmatic implications' has several important implications for the research and practice of CBM. Let me enumerate these briefly. Harris and Monaco offer an example of how the kinds of questions we ask our clients influence the nature of their reports. They cite a study by Loftus (1975), who asked subjects either

(1) Do you get headaches frequently, and if so, how often?
(b) Do you get headaches occasionally, and, if so, how often?

Subjects questioned with (a) reported a mean of 2.2 headaches per week, while those questioned receiving (b) reported only .7 headaches. Thus, the type of questions we ask will influence the nature of the answers offered. Surely this is not an unexpected result. Its significance, above offering a methodological caveat, entails the pragmatic implications drawn by our clients. A central feature of CBM therapy (e.g., Beck's cognitive therapy with depressives) is to have clients engage in graded task assignments that are incompatible with thier prior expectations. Similarly, Ellis' use of shame exercises also provides client's with opportunities where behavioral consequences will lead to certain pragmatic implications. The object is to have our clients reconsider the 'evidence'. We are concerned with the nature of the pragmatic implications our clients draw. As therapists we arrange conditions, ask questions, etc., that will lead the client to draw certain inferences.

The Harris and Monaco paper also offers a means to study individual differences. Consider applying their experimental procedures to an examination of such clinical populations as depressives and non-clinical populations who have adequately coped with bouts of depression. How do the groups differ in their disposition to generate pragmatic implications? Can the literature and experimental paradigms offered by Harris and Monaco be applied to study the types of thinking errors that Beck has described as characterizing depressives? Moreover, one may raise the question as to whether the particular thought patterns of arbitrary inference, overgeneralization, etc., that Beck has described could be extended to ourselves, in the role of scientists.

The Harris and Monaco article has implications for how we can study the nature of our client's deficit, the mechanisms of the change process and our own behavior as therapists and scientists.

An innovative approach to the study of scientific biases has been offered by *Slovic* and *Fischhoff* (1977) who study foresight vs. hindsight in predicting the likelihood of various experimental outcomes. Like our clients, scientists are disposed to exaggerate the perceived predictability of past events, a bias that Slovic and Fischhoff encourage us to guard against. Their experimental design could be extended to the study of self-fulfilling prophecies in clinical populations. A related article by Fischhoff, Slovic and Lichtenstein (1977) examines the (mis)calibration process that individuals employ in knowing something with certainty. In general, they found that subjects were consistently overconfident in their judgments. From a behavioral change viewpoint it would be interesting to examine the conditions that cause individuals to question both their overconfidence and hindsight. The Fischhoff et al. results illustrate how little people are aware of the reconstructive nature of their memory and perception and how they fail to distinguish between assertions and inference. These are the cognitive processes that CBM therapists deal with all the time. Before studying these decision making processes in the laboratory we should note the work of Ebbesen, Parker and Konecni (1977), who found that the decision making model developed in the lab did not apply in field test assessments. (Also see Olson, 1977, for a discussion of similar errors of generalization.)

An interesting approach to the study of problem-solving that has heuristic value for intervention is the work by *Fischhoff*, *Slovic* and *Lichtenstein* on fault trees. A fault tree is a detailed representation in functional categories of the things that can go wrong in a problem situation. For example Fischhoff et al. provide a fault tree to explain why a 'car won't start', but they go on to indicate that one could readily develop such a fault tree for a variety of situations. In my own lab we have been trying to identify from parents the situations they find most disconcerting (anger-engendering) in their children. This will yield a rather detailed developmental behavior checklist. In this way parents will know what to 'look ahead to' in the coming years and moreover, from an educational viewpoint, we can have them develop fault trees to analyze the potential future stressors. It is being suggested that the problem-solving decision making model offered by Fischhoff et al. can be used as a means of preventative intervention. The model deserves careful attention. Do clinical populations differ in how they generate and employ such fault trees? Can such a model help elucidate the nature of deficits as well as be employed therapeutically? Perhaps one of the most interesting questions involves how the construction of a fault tree does and does not come to control behavior?

Cvetkovich (1978) examined the form of thinking decision makers employ under conditions where the individual does or does not feel responsible for his/her judgment to another person. Decision-makers' self-reports of their judgment policies were analytic and easily described to another person when they believe that they are personally accountable for their judgments. In contrast, persons making judgments for themselves or for someone not having a legitimate reason to question their thinking were significantly less accurate at describing their judgment. These decision-makers evidently shift to a form of thinking that is rapid, intuitive and difficult to describe. Cvetkovich states that socially accountable decision makers 'seem to be 'talking to themselves' as they would to the person for whom the judgments are being made' (p. 149). In study 1, Cvetkovich assessed the subjects (college students) decision making process on a betting task by asking them to assign weights (100 points) among four risk dimensions according to how important they thought each was when making their judgments. In study 2, Cvetkovich included a silent versus think aloud procedure and employed judgement time as an index of form of thinking. Using McNeill's (1972) argument that nongrammatical schema (i.e., a kind of intuitive

global thinking approach will take a shorter period than more analytic language based sequential thinking), Cvetkovich employed decision time as an additional indicator of the subject's form of thinking. In the cases studied by McNeill the 'intuitive' nongrammatical thinking took miliseconds whereas the analytic thinking took 1 to 3 seconds. The results with the weighting judgments and the decision times indicated that social responsibility affects cognitive and linguistic accommodation. In short, making bets for a friend resulted in greater caution and analytic thinking than making bets for oneself. Thus making the person self-conscious may result in a shift to language based thinking.

Cvetkovich's study raises several interesting questions concerning the situations that lead to analytic versus intuitive thinking and the behavioral consequences that follow from each. Exactly what elements of CBM therapy contribute to this shift in form of thinking?

UPDATES

As a final feature of each newsletter, I will list recent CBM articles that were reviewed in earlier newsletters. Since many of the articles I have reviewed in earlier issues of the newsletter were prepublication copies I will attempt to keep you advised of their published reference.

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